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iii. Report of the Inspector-General on the district, local, and private Lunatic Asylums in Ireland, 1844, with Appendices. (Presented to both Houses of Parliament, by command of Her Majesty, 1845).	
iv. Fifteenth Annual Report of the Belfast District Asylum for the Insane Poor, March, 1845).	
v. Report of the Directors of the Montrose Lunatic Asylum, Infirmary, and Dispensary, for the Year ending 2nd June, 1845.	
vi. Twenty-fifth Annual Report of the Directors of the Dundee Royal Asylum for Lunatics, 1845.	
vii. An Essay on the Use of Narcotics and other remedial Agents calculated to produce Sleep in the Treatment of Insanity. For which the Author obtained the Lord Chancellor's Prize in Ireland, awarded by the President and Fellows of the King and Queen's College of Physicians. By Joseph W. Williams, M. D.	
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6. Physiologie Pathologique, ou Recherches cliniques, experimentales, et microscopiques sur l'Inflammation, la Tuberculisation, les Tumeurs, la Formation du Cal, etc. Par H. Lebert, Docteur en Médecine, etc. Accompagné d'un Atlas de vingtdeux Planches gravées, 181

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 11. Scrofula,—its Nature, its Causes, its Prevalence, and the Principles of Treatment. By Benjamin Phillips, F. R. S., Assistant-Surgeon to the Westminster Hospital.

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1. Lectures on the Urine, and on the Pathology, Diagnosis, and Treatment of Urinary Diseases. By J. Aldridge, M.D. Dublin: Machen, 1846. pp. 582. (Reviewed).
2. Elements of the Theory and Practice of Medicine, designed for the Use of Students and Junior Practitioners. By George Gregory, M.D., &c. 6th edition. London: Renshaw, 1846. 8vo. pp. 799.
3. Practical Surgery. By Robert Liston. 4th edition. London: Churchill, 1846. (In our next).
4. The Structure and Functions of the Female Breast, as they relate to its Health, Derangement, and Disease. By E. W. Tuson, F.R.S., &c., &c. London: Churchill, 1846. 8vo. pp. 485. (Reviewed).
5. Notes and Recollections of a Professional Life. By the late William Ferguson, Esq., M.D., Inspector-General of Military Hospitals. Edited by his Son, James Ferguson. London: Longman, 1846. 8vo. pp. 246.
6. Fourth Annual Report of the Edinburgh Medical Missionary Society. Edinburgh: Jack, 1846. pp. 36.
7. The Health and Sickness of Town Population, considered with reference to proposed sanitary Legislation and to the Establishment of a comprehensive System of Medical Police and District Dispensaries, with Appendices and Statistical Tables. London: Parker, 1846. 8vo. pp. 119.
8. A System of Surgery. By J. M. Chelius. Translated by J. F. South. London, 1846. Parts xi. xii. (In our next).
9. The Mineral Waters of Kreuznach. By J. P. Prieger, M.D. Translated by Oskar Prieger, M.D. London: Churchill, 1846. pp. 92.
10. On the Treatment of Strictures of the Urethra by mechanical Dilatation, &c. By James Briggs. London: Longman, 1846. pp. 64.
11. Remarks on Medical Organization and Reform, Foreign and English. By Edwin Lee, Esq. London: Churchill, 1846. 8vo. pp. 121.
12. Practical Observations on Mineral Waters and Baths, with Notes of some Continental Climates; and a Reprint (the third), of the Cold Water Cure. London: Churchill. 8vo. pp. 134, and 42.
13. On Disorders of the cerebral Circulation, and on the Connexion between Affections of the Brain and Diseases of the Heart. By George Burrows, M.D. London: Longman, 1846. 8vo. pp. 220. 6 Plates. (In our next).
14. Meade's Manual for Students preparing for Examinations at Apothecaries' Hall or other Medical Institutions. Second edition, improved, &c. London, 1846. 12mo. pp. 536.
15. Remarks on the Dysentery and Hepatitis of India. By E. A. Parks, M.B., late Assistant Surgeon H.M. 34th Regiment. London: Longman, 1846. 8vo. pp. 271. (In our next).
16. The Health of Towns as influenced by defective Cleansing and Drainage, and on the Application of the Refuse of Towns to agricultural Purposes; being a Lecture delivered at the Russell Institution, May 5th, 1846. By W. A. Guy, M.D. London: Renshaw. 8vo. pp. 48.
17. The Economy of the Animal Kingdom considered anatomically, physically, and philosophically. By Emanuel Swedenborg. Translated from the Latin by the Rev. A. Clissold, M.A. Vol. II. London: Newbury. 8vo. 1845. pp. 574. (In our next).
18. An investigation into the Nature of Black Phthisis, or Ulceration, induced by Carbonaceous Accumulation in the Lungs of Coal Miners and other Operatives. By Archibald Makellar, M.D., &c. Reprinted from the Monthly Journal of

Medical Science. Edinburgh: Sutherland and Knox. Pamphlet, pp. 50. (In our next).

19. A Practical Manual, containing a Description of the general, chemical, and Microscopical Properties of the Blood and Secretions of the human Body, as well as their Components, including both their healthy and diseased States, with the best methods of separating and estimating their Ingredients, &c. By J. W. Griffith, M. D., &c. London: J. and R. Taylor, 1846. 12mo. pp. 168. (In our next).

20. A Practical Treatise on the Diseases of Children. By James Milman Coley, M. D., &c. London: Longman, 1846. 8vo. pp. 467.

21. Transactions of the Medical and Physical Society of Bombay. Nos. iv., v., vi., vii. Presented by Joseph Shekleton, M. D., E. I. C. S.

22. Report on Smallpox in Calcutta, and Vaccination in Bengal. By Duncan Stewart, M. D. Calcutta: Huttman, 1844. pp. 264.

23. Quelques Considerations en Réponse a l'Examen de la Phrenologie de M. le Professeur P. Flourens. Par M. S. De Wolkoff, 1846. Tract, pp. 16.

24. Some Account of the epidemic Fever which prevailed in Liverpool in the latter Months of the Year 1844. By G. C. Watson, M. D. Tract, pp. 26.

25. Dr. Hooper's Physician's Vade Mecum, or, a Manual of the Principles and Practice of Physic. New edition, considerably enlarged and improved, with an Outline of general Pathology and Therapeutics. By W. A. Guy, M. B. London: Renshaw, 1846. 8vo. pp. 523.

26. Observations on the Edinburgh Pharmacopœia, and on the Dispensatories of Dr. Christison and Dr. A. J. Thompson, to which are added, Illustrations of the present State of Pharmacy in England. By R. Phillips, J. R. S. London: Highly, 1846. 8vo. Pamphlet, pp. 58.

27. The Liverpool Health of Towns Advocate; published under the Directions of the Committee of the Liverpool Health of Towns Association. Nos. i. to xi. (A small Monthly Periodical).

28. A Guide to the use of the Buxton Waters. By W. H. Robertson, M. D. Third edition, revised. London: Bogue, 1846. pp. 31.

29. A Table of Deaths registered in 115 Districts in England, during the Quarter ending March 31, 1846. General Register Office, London. 4to. pp. 18.

30. The Ballynahinch Mineral Waters. By A. Knox, M. D., Author of "The Irish Watering Places." Belfast: 12mo. pp. 47.

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1. Medico-Chirurgical Review and Journal of Practical Medicine. London

2. The British and Foreign Medical Review, &c. Edited by John Forbes, M. D. London. (No. 43, Recd. 17th July.)

3. The Edinburgh Medical and Surgical Journal; exhibiting a concise View of the latest and most important Discoveries in Medicine, Surgery, and Pharmacy. Edinburgh.

4. Transactions of the Medical Society of London. London.

5. The Transactions of the Provincial Medical and Surgical Association. London.

6. The Retrospect of Medicine, being a half-yearly Journal, containing a retrospective View of every Discovery and practical Improvement in the Medical Sciences. London: Edited by W. Braithwaite, Esq.

7. The Half-Yearly Abstract of the Medical Sciences, being a practical and analytical Digest of the principal British and Continental Medical Works, &c.

London. Edited by N. H. Ranking, M. D. (Vol. iii. for July, Recd. on the 16th of the month.)

8. The Pharmaceutical Journal and Transactions. London. Edited by Jacob Bell.

9. Monthly Journal of Medical Science, in which is incorporated The Northern Journal of Medical Science. Edinburgh.

10. The Athenæum—Journal of English and Foreign Literature, Science, &c. London.

11. London Medical Gazette, or Journal of Practical Medicine. London.

12. Provincial Medical and Surgical Journal. London. Edited by Robert Streeten, M. D.

13. The American Journal of Medical Science. Edited by Isaac Hays, M. D. Philadelphia. (Recd. No. for January, 1846.)

14. The Medical Examiner and Record of Medical Science. Philadelphia. Edited by R. W. Huston, M. D. (Recd. Nos. from January to May, 1846, inclusive.)

15. The New York Journal of Medicine. New York. (Not yet recd.)

16. The New Orleans Medical and Surgical Journal, devoted to Medicine and the collateral Sciences. Edited by Drs. Carpenter, Fenner, Harrison, and Hester. New Orleans. (Recd. No. for January, 1846.)

17. The British American Journal of Medical and Physical Science. Edited by Archibald Hall, M. D., Lecturer on Chemistry, and Robert L. Macdonnell, M. D., Lecturer on the Institutes of Medicine, University of McGill College. Montreal. (Recd. Number for February, 1846.)

18. Gazette Médicale de Paris. Paris.

19. Gazette Médico-Chirurgicale à Paris. Paris.

20. La Lancette Française, Gazette des Hôpitaux Civils et Militaires. Paris.

21. Annales d'Oculistique, publiées par la Dr. Florent Cunier, Bruxelles. (Recd. Nos. for May and June.)

22. Journal de Chimie Médicale, de Pharmacie, de Toxicologie, et Revue de Nouvelles, scientifique, Nationales et Etrangères, &c. Paris.

23. Journal de Pharmacie et de Chimie, &c. Paris.

24. Revue Médicale Française, et Etranger Journal des Progrès de la Médecine Hippocratique. Par J. B. Cayol. Paris. (Recd. Nos. i. ii. iii.)

25. Archives Général de Médecine; Journal Complimentaire des Sciences Médicales. Paris. (Recd. No. for July.)

26. Zeitschrift für die Gesammte Medicin mit besonderer Rücksicht auf Hospitalpraxis und ausländische Literatur. Hamburg. Recd. 40 for June.

27. Zeitschrift der K. K. Gesellschaft der Aerzte zu Wien—Redakteur, Dr. Karl Haller. Vienna.

28. Journal für Kinderkrankheiten unter Mitwirkung der Herren Dr. Barez, und Dr. Bomberg, herausgegeben von Dr. F. J. Behrend und Dr. Hildenbrand. Berlin. (Recd. No. for June.)

29. Journal für Chirurgie und Augenheilkunde herausgegeben von Dr. P. von Walther and Dr. T. A. von Ammon. Berlin.

30. Annalen der Chemie und Pharmacie herausgegeben von F. Wöhler und Justus Leibig. Heidelberg. (Recd. No. for May.)

33. Gazzetta Medica de Milano. Milan.

NOTICES TO CORRESPONDENTS.

In order to facilitate the advertising of the Winter Courses of Medical Lectures, Schools, Dissections, and Hospitals, &c. &c., the Fourth Number of this Journal will be issued before the end of October.

The great length of the original communications, the Medical Periscope, and the Biographical Memoirs, obliges us to omit in the Review and Bibliographical Department of this Number many works of great interest, the notices of which are already in type. We have been also compelled to omit several cases of great practical importance in our Medical Miscellany this time, for the same reason. That of our next will contain cases by Sir Henry Marsh, Bart., Mr. Hamilton, Drs. Lalor, Purefoy, and others.

Our next Number will contain Original Articles by Sir Philip Crampton, Professor Simpson, of Edinburgh, Professor Law, Dr. O'Ferrall, the late Professor Greene, and Dr. Mayne; and also an extended Retrospect of Ophthalmic Surgery.

We purpose shortly giving Biographical Memoirs of Drs. Mosse, O'Halloran, Sir Thomas Molyneaux, Steevens, Todd, Macartney, and other distinguished Physicians and Surgeons who have flourished in this country, and when such can be procured, portraits of these eminent men.

At page 21 of the Dublin Quarterly Journal of Medicine for February last, it was stated that the stylet adapted by Mr. L'Estrange to the Lithotrite (an instrument to which he has added many very valuable improvements), did not clear the groove in the upper branch of the instrument, and was, moreover, liable to slip from its bed, and injure the bladder. We have, however, since examined Mr. L'Estrange's instrument with great attention, and beg to state, that it is not liable to those objections; but the slot cut in the lower blade for receiving the teeth of the upper, and permitting the detritus to pass through, which is now added to nearly every lithotrite in use, to a certain degree renders the use of the stylet unnecessary. The great improvement of Mr. L'Estrange's instrument, however, the application of the screw, though now in such general use, does not seem to have its due meed of merit awarded to it by the profession.

Since the article on the history of Compression in the cure of Popliteal Aneurism was printed, we have heard that Dr. M'Donnell, of this city, has successfully treated a case of this nature in the Richmond Hospital; and in the *Lancet* of the 18th of this month we have an account of another case of Popliteal Aneurism cured by pressure in the Naval Hospital at Plymouth. This latter case is particularly worthy of notice, as, from an unusual distribution of the femoral artery, it would have been found very difficult to have cured the disease by the ordinary operation, and is, therefore, an additional argument in favour of compression. These cases increase the number treated to thirty-one; the cures to twenty-seven; and the number treated in Dublin to twenty.

For the valuable and extensive Obstetrical Museum, alluded to at p. 292, in the biography of Sir Patrick Dun, it should have been mentioned that the College is indebted to the exertions of Professor Montgomery.

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BOOKS AND PERIODICALS RECEIVED.

1. The Brain and its Physiology, a critical disquisition on the Methods of determining the Relations subsisting between the Structure and Functions of the Encephalon. By Daniel Noble, M. R. C. S. E. London: Churchill, 1846. pp. 450.
2. A Quarterly Table of the Mortality in 115 Districts of England. By the Registrar-General; June Quarter, 1846.
3. Report on Small-pox in Calcutta; and Vaccination in Bengal, from 1827 to 1844. By Duncan Stewart, M. D., Surgeon, E. I. Co.'s Service. Published by Order of Government. Calcutta: Huttman, 1844. 8vo. pp. 284.
4. On the Antidotal Treatment of the Epidemic Cholera. By John Parkin, M. D. London: 1846. 8vo. pp. 60.
5. Twenty-sixth Annual Report of the Dundee Royal Asylum for Lunatics.
6. An Essay on the Wear and Tear of Human Life, and the real Remedy for this Complaint. By G. T. Hayden, M. B., &c. Dublin: Fannin, 1846. pp. 155.
7. Commentary on the Hindoo System of Medicine. By J. A. Wise, M. D., &c., Bengal Medical Service. Calcutta: 1845. 8vo. pp. 431.
8. Clinical Illustrations of the Diseases of India, as exhibited in the Medical History of a body of European Soldiers for a Series of Years, from their Arrival in that Country. By William Geddes, M. D., &c. London: Smith and Elder, 1846. 8vo. pp. 492.
9. Elements of Physics. By C. F. Peschel, Principal of the Royal Military College at Dresden. Translated from the German; with Notes by E. West. Illustrated with Diagrams and Woodcuts. Vols. II. & III. London: Longman, 1846. 12mo. pp. 316 and 271.
10. The Microscopic Anatomy of the Human Body in Health and Disease. Illustrated with numerous Drawings in Colours. By Arthur Hill Hassell, Author of a "History of the British Freshwater Algæ." London: Highley, 1846. Parts I. and II. 8vo.
11. The Use of the Body in Relation to the Mind. By George Moore, M. D., &c. London: Longman, 1846. 8vo. pp. 431.
12. Fever physiologically considered; Considerations on Yellow Fever, Typhus Fever, Plague, Cholera, and Sea-Scurvy, &c. By David McConnell Reed, Esq. London: Churchill, 1846. 8vo. pp. 262.
13. A Series of Essays on Inflammation and its Varieties, tending to shew, that most Diseases either consist in Inflammation or are Consequences of it, more or less remote. By Henry Clutterbuck, M. D. London: Highley, 1846. 8vo. pp. 77 (Pamphlet).
14. Medical Report of the House of Recovery and Fever Hospital, Cork-street, Dublin, for two Years, from 1st January, 1844, to 31st December, 1845. By G. A. Kennedy, M. D., M. R. I. A., &c. Dublin: Printed for the Committee, by Webb and Chapman, 1846. pp. 52 (Pamphlet).
15. Observations regarding the Influences of Galvanism upon the Action of the Uterus during Labour.—Unfinished Memoir on the spontaneous Expulsion and artificial Extraction of the Placenta before the Child in placental Presentations;—Clinical Lectures on Midwifery and Diseases of Women and Infants;—Ovariectomy—is it, or is it not, an Operation justifiable on the common Principles of Surgery?—Suggestions on Post Partem Hemorrhages;—By J. Y. Simpson, M. D., Professor of Midwifery in the University of Edinburgh, &c. (Tracts).

16. The sanatory Influence of Climate. By Sir J. Clark, Bart., M. D., &c. 4th Edition. London: Murray, 1846. Small 8vo. pp. 412.

17. Die Ursachen und Behandlung des Ohrenflusses, von W. R. Wilde; aus dem Engleshen. Stralsund: Löffersche Buchhandlung (E. Hingst), 1846. From the Translator, Dr. von Haselberg. 8vo. pp. 50. 1846.

18. On Wounds and Injuries of the Arteries of the Human Body; with the Treatment and Operations required for their Cure. Illustrated by 130 Cases, &c. By G. L. Guthrie, F. R. S. London: Churchill, 1846. Large 8vo. pp. 97.

19. Irish Geology, in a Series of Chapters, &c. By T. Antisell. Dublin: McGlashan, 1846. 12mo. pp. 84.

20. Handbuch der Pathologie und Therapie von Dr. C. Wunderlich; Dritter Band. Forwarded by the Publishers, Ebner and Seubert, Stuttgart. 1846.

21. The Why and the Wherefore; or The Philosophy of Life, Health, and Disease, &c. By Charles Searle, M. D., &c. London: Churchill, 1846. 8vo. pp. 266.

22. Ein Fall von Vergiftung mit Schiedewasser Beobachtet. Dr. F. A. B. Puchelt. Heidelberg: Moher, 1846. pp. 15 (Tract).

23. Experimental Researches on the Food of Animals and the Fattening of Cattle; with Remarks on the Food of Man. By Robert Dundas Thomson, M. D. London: Longman, 1846. 8vo. pp. 195.

24. Cosmos. Sketch of a Physical Description of the Universe. By Alexander Von Humboldt. Vol. I. Translated under the Superintendence of Lieut.-Col. Edward Sabine, R. A. London: Longman, 1846. 8vo. pp. 473.

25. Clinical Collections and Observations on Surgery, made during an Attendance on the Surgical Practice of St. Bartholomew's Hospital. By W. P. Omerod, F. R. C. S. E., &c. London: Longman, 1846. 8vo. pp. 312.

26. Lectures and Observations on Clinical Surgery. By A. Ellis, F. R. C. S. I. Dublin: Fannin, 1846. 8vo. pp. 275.

27. Practical Observations and Suggestions in Medicine. Second Series. By Marshal Hall, M. D., &c. London: Churchill, 1846. Small 8vo. pp. 360.

28. The Moral Aspects of Medical Life. &c. Translated from the German. By James Mackney, M. D. London: Churchill, 1846. 8vo. pp. 348.

29. A System of Surgery. By J. M. Chelius. Translated by J. F. South. Part XIII.

30. Notes on the Epidemic Cholera. By R. Hartley Kennedy, M. D., &c. 2nd Edition. London: Smith, 1846. 8vo. pp. 279.

31. Introduction to Zoology, for the Use of Schools. By Robert Patterson, Vice-President of the Natural History and Philosophical Society of Belfast, &c. Invertebrate Animals; with upwards of 170 Illustrations. London: Simpkin, Marshall, & Co., 1846. 12mo. pp. 194.

32. The Blood Anatomically, Physiologically, and Pathologically considered, with a view to exemplify or set forth, by Instance or Example, the Wisdom, Power, and Goodness of God, as revealed or declared in Holy Writ. The Warneford Prize Essay for the Year 1845. By Charles Edward Joseph, M. R. C. S., &c. London: Churchill, 1846. 8vo. pp. 126.

33. An Easy Introduction to Chemistry. By George Sparks, late Madras Civil Service. 2nd Edition. London: Whittaker and Co., 1846. 8vo. pp. 184.

34. A Review of Homœopathy, Allopathy, and Young Physic. By S. M. Lawson, M. D. Philadelphia.

35. Urinary Deposits; their Diagnosis, Pathology, and Therapeutical Indications. By Golding Bird, M. D., &c. Second Edition. London: Churchill, 1846. 8vo. pp. 357.

36. Records of Harvey, in Extracts from the Journals of the Royal Hospital of St. Bartholomew. With Notes by James Harvey. London: Churchill, 1846. (Pamphlet).

37. A Guide for the Proper Management of the Teeth, &c. By W. R. Bridgeman, Dentist. London: Churchill, 1846. 12mo. pp. 88.

38. Chemistry of the Four Seasons, &c. By Thomas Griffiths, Professor of Chemistry. London: Churchill, 1846. 8vo. pp. 495.

39. A Descriptive Catalogue of the Anatomical Museum of St. Bartholomew's Hospital. Published by Order of the Governors. Vol. I. Pathology. London: Churchill, 1846. pp. 487.

40. Dr. Underwood's Treatise on the Diseases of Children. Tenth Edition, with additions. By H. Davis, M. D. London: Churchill, 1846. 8vo. pp. 595.

41. Quarantine and the Plague; being a Summary of the Report on these Subjects, recently addressed to the Royal Academy of France: with Introductory Observations, Extracts from Parliamentary Correspondence, and Notes. By Gavin Milroy, M. D., &c. London: Highley. (Pamphlet).

BOOKS AND PERIODICALS WITH WHICH THE DUBLIN QUARTERLY JOURNAL IS EXCHANGED.

1. Medico-Chirurgical Review and Journal of Practical Medicine. London: Highley. (Reed. No. for October).

2. The British and Foreign Medical Review, &c. Edited by John Forbes, M. D. London: Churchill. (Reed. No. for October).

3. The Edinburgh Medical and Surgical Journal; exhibiting a concise View of the latest and most important Discoveries in Medicine, Surgery, and Pharmacy. Edinburgh: Black. (Reed. No. for October).

4. The Medico-Chirurgical Transactions. London.

5. Transactions of the Medical Society of London. London.

6. The Transactions of the Provincial Medical and Surgical Association. London.

7. Transactions of the Medical and Physical Society of Bombay. Bombay.

8. The Retrospect of Medicine, being a half-yearly Journal, containing a retrospective View of every Discovery and practical Improvement in the Medical Sciences. London: Simpkin and Co. Edited by W. Braithwaite, Esq.

9. The Half-Yearly Abstract of the Medical Sciences, being a practical and analytical Digest of the principal British and Continental Medical Works, &c. London: Churchill. Edited by N. H. Ranking, M. D.

10. Guy's Hospital Reports. London: Highley, 1846. 8vo. pp. 498. (Reed. Second Series, Vol. IV.)

11. The Pharmaceutical Journal and Transactions. London. Edited by Jacob Bell. (Reed. Nos. for August, September, and October).

12. Monthly Journal of Medical Science, in which is incorporated The Northern Journal of Medical Science. Edinburgh: Sutherland and Knox. (Reed. Nos. for August, September, and October).

13. The Athenæum—Journal of English and Foreign Literature, Science, &c. London. (Reed. regularly).

14. London Medical Gazette, or Journal of Practical Medicine. London. (Reed. regularly).

15. The Medical Times. London. (Reed. regularly).

16. Provincial Medical and Surgical Journal. London. Edited by Robert Stretton, M. D. Worcester: Dighton and Co. (Reed. regularly).

17. The American Journal of Medical Science. Edited by Isaac Hays, M. D., Philadelphia. (Not yet arrived).

18. *The Medical Examiner and Record of Medical Science.* Edited by R. W. Huston, M. D. Philadelphia: Lindsay and Blackeston. (Recd. No. for June, 1846).

19. *The New York Journal of Medicine and the Collateral Sciences.* Edited by C. A. Lee, M. D. New York: Langley. (Not yet recd.)

20. *The New Orleans Medical and Surgical Journal, devoted to Medicine and the collateral Sciences.* Edited by Drs. Carpenter, Fenner, Harrison, and Hester. New Orleans. (Not yet recd.)

21. *The American Journal of Arts and Sciences*; conducted by Professor Silliman, and E. Silliman, Jun. New York. (Recd. Nos. for July and Sept. 1846).

22. *The British American Journal of Medical and Physical Science.* Edited by Archibald Hall, M. D., and Robert L. Macdonnell, M. D., University of McGill College. Montreal. (Not yet recd.)

23. *Southern Medical and Surgical Journal.* Edited by Paul Eve, M. D., and J. P. Garvin, M. D. Augusta: M'Cafferty. (Recd. No. for July).

24. *The Western Journal of Medicine and Surgery.* Edited by Drs. Drake, Yandell, and Colescott. Louisville, Ky. (Recd. Nos. for July and August).

25. *The American Journal of Pharmacy.* Published by authority of the Philadelphia College of Pharmacy. Edited by J. Carson, M. D., and R. Bridges, M. D. Philadelphia: Merrishow and Thompson. (Recd. No. for January).

26. *The Boston Medical and Surgical Journal.* Boston: Clapp. (Recd. No. for December, 1845).

27. *The American Journal of Insanity.* Edited by the Officers of the New York State Lunatic Asylum, Utica. Utica: Bennett, Backus, and Hawley. (Recd. No. for July).

28. *Gazette Médicale de Paris.* Paris. (Recd. regularly).

29. *Gazette Médico-Chirurgicale a Paris.* Paris. (Recd. regularly).

30. *La Lancette Française, Gazette des Hôpitaux Civils et Militaires.* Paris. (Recd. regularly).

31. *Annales d'Oculistique, publiées par la Dr. Florent Cunier, Bruxells.* (Recd. Nos. for July, August, and September).

32. *Journal de Chimie Medicale, de Pharmacie, de Toxicologie, et Revue de Nouvelles, scientifique, Nationales et Etrangers, &c.* Paris. (Recd. Nos. for August and September).

33. *Journal de Pharmacie et de Chimie, &c.* Paris. (Recd. Nos. for August and September).

34. *Revue Médicale Française, et Etranger Journal des Progress de la Medecine Hippocratique.* Par J. B. Cayol. Paris. (Recd. Nos. for August and September).

35. *Archives Général de Médecine; Journal Complementaire des Sciences Medicales.* Paris. (Recd. Nos. for August and September).

36. *Zeitschrift für die Gesamnte Medicin mit besonderer Rücksicht auf Hospitalpraxis und ausländische Literatur.* Von Dr. F. W. Oppenheim. Hamburg. (Recd. Nos. for August and September).

37. *Neue Notizen aus dem Gebiete der Natur und Heilkunde, gesammelt und mitgetheilt von D. L. F. Froriep und Dr. R. Froriep.* Weimar. (Recd. Nos. from January to July).

38. *Zeitschrift de K. K. Gesellschaft der Aerzte zu Wien—Redakteur, Dr. Karl Haller.* Wien. (Recd. No. for May).

39. *Zeitschrift für Rationnell Madezin Herausgegeben. Von Dr. J. Henle*

und Dr. C. Pfeufer, Professoren der Medezin an der Universität. Zu Heidelberg. Band. IV.—i. ii. und iii. Heft. Band. V.—i. Heft.

40. Journal für Kinderkrankheiten unter Mitwirkung der Herren Dr. Barez, und Dr. Bemberg, herausgegeben von Dr. F. J. Behrend und Dr. Hildenbrand. Berlin. (Reed. Nos. for June and July).

41. Medicinesche Jahrbücher des Kaiserliche Königl. Oesterreich. Staats. Wien. (Reed. No. for January, 1846).

42. Journal für Chirurgie und Augenheilkunde herausgegeben von Dr. P. von Walther und Dr. T. A. von Ammon. Berlin. (Not yet reed.)

43. Annalen der Chemie und Pharmacie herausgegeben von F. Wöhler und Justus Liebig. Heidelberg. (Reed. Nos. for June and July).

44. Gazzetta Medica di Milano. Milan. (Reed. Nos. for May and June).

UNIVERSITY OF DUBLIN.

The degree of M. B. was conferred on the following Gentlemen at the Spring and Summer Commencements in this year.

David Tucker.	Owen Daly.
Michael J. M'Cormick.	John D. Crawford.
George Porter.	Henry Graves.
John Barker.	Richard Jones Hobson.

Alexander M'Donnell and Edward Hamilton received the *Licent ad examinandum*, but have not yet been examined.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

List of Gentlemen who obtained the Letters Testimonial of the College since 31st December, 1843.

John H. Halliday.	Arthur R. Neville.
Rawdon M'Namara.	Frederick Y. Shegog.
George Hyde.	Arthur Leared.
John Peile.	Thomas Deageley.
Patrick J. Clarke.	John F. Furlong.
Edward Hamilton.	John O. Gray.
Bernard Delany.	Henry C. I. Wilson.
Thomas Breen.	James W. Murphy.
Michael Murphy.	James Metge.
Edward Copeland.	Richard Sargint.
William H. Short.	William Clarke.
Patrick J. Finegan.	Anthony Brabason.
Joseph Robinson.	

APOTHECARIES' HALL.

List of Gentlemen who obtained the License from the Apothecaries' Hall of Dublin since 31st December, 1845.

William P. Forrestal.	James G. Lepper.
James Roche Nagle.	James M. Carey.
James B. Hallinan.	Lloyd H. O'Reilly.
Bartholomew Hamilton.	George Mahood.
James C. Holland.	Abraham J. Tuckey.
Alexander Somers.	Martin J. Burke.
John H. Walker.	Edward Hamilton.
Daniel Hoey.	Thomas W. Brennan.
Daniel Murray.	William O'Keefe.
Michael C. Byrne.	Richard Irwin.
Thomas Peppard.	Charles M'Master.

NOTICES TO CORRESPONDENTS.

In order to facilitate the advertising of the Winter Courses of Medical Lectures, Schools, Dissections, and Hospitals, &c., &c., the Fourth Number of this Journal has been issued before the end of October.

We have to apologise to Dr. Lalor, of Kilkenny, for being compelled, from want of space, to omit his communication on Epidemic Dysentery. It shall be given in our next Number, together with Original Articles by Sir Philip Crampton, Professor Wilmot, Professor Law, Dr. Mackenzie, Dr. R. Smith, and the late Professor Greene. The early Numbers, during the next year, will contain Original Communications by several of the most distinguished Physicians and Surgeons in Great Britain and upon the Continent.

The Report upon the Progress of Ophthalmic Surgery, promised in our last, was put into type for the present Number, but was obliged to be abstracted in order to make room for the lengthened Biography of Dr. Mosse. It shall be given in our next.

We purpose shortly giving Biographical Memoirs of Drs. M'Bride, Rutt, O'Halloran, Sir Thomas Molyneux, Steevens, Todd, Macartney, Lucas, Sir Hans Sloane, O'Connell, Robinson, and other distinguished Physicians and Surgeons who have flourished in this country; and, when such can be procured, portraits of these eminent men: that of M'Bride is already in the engraver's hands. Should any of our friends possess material which could assist in these our endeavours to illustrate the History of Irish Medicine, we should feel most grateful for it.

We beg leave respectfully to inform the Members of the Dublin Pathological Society, that as the Proceedings of that body have been submitted to the consideration of the Council, and corrected by their Secretary before being sent to us for publication, we cannot be answerable for any errors which may appear in them, except those which ordinarily occur in the course of printing.

In our Notices to Correspondents in the last Number of this Journal, we apologised to Professor Montgomery for having inadvertently omitted, in our Memoir of Sir Patrick Dun, the introduction of his name in connexion with the Obstetrical Museum, placed by him in the College of Physicians, but in doing so we again fell into the error of not stating that this splendid collection was his private property. For this omission we here again beg to make amends, and to assure both Professor Montgomery and our friend the Editor of the *Freeman's Journal*, who has called public attention to the subject, that it arose from mere inadvertence, and not from any desire to rob Professor Montgomery of his just meed of merit for collecting such a valuable Museum. Nevertheless, we are rather grieved than otherwise, that in a School so distinguished in every branch of Medical Science as that of Dublin undoubtedly is, this valuable collection of Dr. Montgomery's should still continue "private property."

In accordance with the promise given in our First Number, we now publish Lists of those Gentlemen who have obtained the Diplomas of our different licensing bodies, except the College of Physicians, which has not furnished us with its List.

We have again to entreat the Editors of the three other Quarterly Medical Periodicals in Great Britain, to use their influence with their Publishers, to forward their exchanged copies on the day of Publication, as in every instance is done by the Publishers of the Dublin Medical Quarterly Journal.

In concluding the first year of our New Series, we beg to return thanks for the unparalleled support which we have received from our numerous friends, contributors, and subscribers.

THE DUBLIN
QUARTERLY JOURNAL
OF
MEDICAL SCIENCE.

AUGUST 1, 1846.

PART I.
ORIGINAL COMMUNICATIONS.

ART. I.—*Researches on the Symptoms and Diagnosis of Aneurisms of the Aorta.* By the late GEORGE GREENE, M. D., Queen's Professor of the Practice of Medicine to the School of Physic in Ireland. Edited by SAMUEL GORDON, M. B., F. R. C. S. I., late Intern to the Medical Hospitals of the House of Industry(a).

THE difficulties which attend the investigation of tumours, whether mild, malignant, or aneurismal, developed in the thoracic and abdominal cavities, have been long and universally admitted. Even up to a recent period in the history of medicine, these difficulties have been considered so numerous as to forbid the notion, even in the minds of the most sanguine, that their diagnosis could ever rest on any other foundation than vague pro-

(a) The manuscripts of the late Dr. Greene having been placed in my hands, I have prepared this portion of his Essay on Aneurism for the press: and I beg to state, that I have also witnessed most of the cases referred to in this paper, and have had charge of several of them.

SAMUEL GORDON.

bability and conjecture. The constant progress of observation, combined with new and more exact methods of research, has, it is true, diminished to a considerable extent the uncertainty of the symptoms by which these affections may be revealed; but every one who has given attention to this subject must be sensible that much observation is yet required before our diagnosis of them can rest on such sure grounds as to give the necessary confidence to the practical physician. In considering the difficulties which attend the investigation of this subject, the first in order is probably the few opportunities which each individual observer has of following the symptoms, and noting the physical signs, in an extensive series of cases. Aneurism in the large cavities, compared with tubercle, disease of the heart, stomach, kidneys, &c. &c., is comparatively rare; and hence when a symptom occurs, either unusual or well marked, it is apt to be considered as pathognomonic; a mistake which will not be corrected until the observer has had opportunities of examining various cases of the disease, and in all its varieties. If, again, in the absence of opportunities of making direct personal observations, he turns to the history of recorded cases, he will find that in many there is nearly a total silence concerning the symptoms; in others a statement that none had existed; while those in which the symptoms and physical signs are detailed are comparatively rare, and, with regard to the latter phenomena, altogether confined to the last few years.

In examining several of those cases, however, in which it is stated that there were no symptoms to indicate the existence of an aneurism during life, several facts are often incidentally mentioned which prove that symptoms did really exist, and which, even allowing for their occasional disappearance, might have served to excite a suspicion of the existence of the disease.

As might be expected, it is the cases which are unattended by a visible pulsating tumour that are the most frequently overlooked, and in which it is said that there are no symptoms to reveal the disease. In this respect the assertion

of those writers who state that the pulsating tumour is the only unequivocal proof of aneurism, has impeded the advance of diagnosis; for, undoubtedly, there are many symptoms and physical signs which, when carefully observed, have been found sufficient, in very many cases, to indicate the disease before any external tumour appeared. Every one, however, must admit that the symptoms, in many cases, are both obscure and equivocal; but yet we have just reason to infer, from the progress which the art of diagnosis has made within the last twenty years, that the investigation of internal aneurism will be ultimately reduced to the same degree of certainty as that of tubercle or disease of the heart.

The diagnosis of any disease can only be advanced by a sound method of investigation, but this method has not been pursued in reference to aneurism of the thoracic aorta. Until the commencement of the present century, investigators were principally occupied in studying the derangement produced in the arterial structure alone, and warm disputations were held as to whether the disease consisted in a dilatation of the vessel, or a rupture of its internal and middle tunics, or both lesions together. The divisions of aneurism also, and the numerous varieties which the deranged tissue had undergone, were carefully noted and faithfully recorded; and, so far as the morbid anatomy is concerned, there is probably but little to be added by future observation. The desire of obtaining accurate information as to the altered condition of the arteries was, however, attended with this injurious result, that until very lately it induced pathologists to sacrifice the several other structures which were in connexion with the diseased vessel, in order that the alterations in the latter might be more clearly perceived, and hence, many of the preparations which crowd our museums lose much of their value, as materials for studying what symptoms, probably, attended their progress during life.

It is the purpose of the present communication to consider the individual symptoms, physical signs, and other circum-

stances attending a number of cases of internal aneurism, which the author had himself accurately observed, and afterwards to view them in their mutual relation to each other, and to the common structural lesion from which they spring. This latter method is absolutely necessary; for in a disease involving so many different structures, and consequently deranging so many various functions, it is vain to look for what is termed a pathognomonic symptom. Such a term, if applicable to any disease, is assuredly not to aneurism of the great cavities, and no more serious error can be made, than to follow one single symptom, or physical sign, to the exclusion of that cautious consideration and combination of the entire phenomena, which can alone lead to a just conclusion. The advantage to be derived from considering all, and not some only, of the symptoms, was clearly perceived by Morgagni, who thus expresses himself on this point: “*Nos autem non quædam, sed pleraque attendi oportere, ideo admonuimus, quia, ut omnia non semper occurrunt, ita quædam tantummodo si spectes, sæpè numero decipiaris*(a).”

With the exception of that marked No. 7, all the subjoined cases were examples of sacculated aneurisms of the arch of the aorta, originating in its posterior wall; and it will be observed that the symptoms and signs were very similar in all: the following observations must, therefore, be understood as applicable to aneurisms of this portion of the vessel alone; there are different symptoms attending those of the sinuses and ascending aorta, which have been elsewhere carefully arranged(b); and there are also distinct symptoms attending the disease in its incipient state, when developed in the superior portion of the descending aorta.

It is proposed, upon some future occasion, to enter on the consideration of these varieties, and to advert to various circumstances connected with the statistics, differential diagnosis,

(a) *Epistole*, xviii. 19.

(b) Vide Paper by Dr. Thurnham in *Medico-Chirurgical Transactions*, vol. v. second series.

and treatment of the disease; at present our attention must be limited to an examination of the symptoms and physical signs of the following cases, all of which were under the continued observation of the author, being either under his own immediate care, or so frequently examined by him as to enable him to take accurate and satisfactory notes of all the phenomena. The whole of these cases are arranged in a tabular form, which will be found subjoined to this communication: they occurred chiefly in the clinical wards of the Whitworth Hospital, House of Industry; those marked 5 and 7 were under the care of the late Doctor Crampton; the last case was under the author's own observation for three months, at Sir P. Dun's Hospital, during the winter session of 1842-3, at which period he was one of the clinical lecturers, and, on more than one occasion, he lectured upon this case, as aneurism of the thoracic aorta. Dr. Law succeeded him in charge of the Hospital, and also considered the disease to be aneurism, which diagnosis he afterwards had an opportunity of verifying, and the post mortem appearances were exhibited to the Pathological Society. This case has since been published by Dr. Law, in the twenty-fifth volume of the former series of this journal.

The preparations of these aneurisms have been placed in the extensive museum of the Richmond Hospital by the curator, Dr. R. W. Smith, who has also inserted an abstract of their history and symptoms in the catalogue, which is always open for reference.

Ten of these cases occurred in males and two in females, which is nearly the proportion I have found to exist on examining a great number of published cases. Seven, or nearly two-thirds, occurred at or beyond the fortieth year of life; two were affected at the early age of twenty-seven and of thirty respectively, and one at the age of sixty-two. Of the male patients three had been in the army, three had worked as common labourers, one as a sawyer, one as a slator, and two had been servants. The previous history could not always be ob-

tained in a satisfactory manner. Five of the males (cases 6, 9, 10, 11, 12), admitted that they had led very intemperate lives, and had frequently been salivated for syphilis; one had had rheumatism in early life; and the remainder stated they had enjoyed good health up to the period when the aneurism first began to manifest itself. The symptoms appeared to have followed a direct injury applied to the chest in two cases only; the rest of the patients could not recollect to have received a blow, fall, or other injury; but when it is recollected that most of them had indulged in habits of intoxication, their statements on this head must be received with some distrust. In very many cases the symptoms of the disease first shew themselves after a concussion, blow, or other violence directed to the thorax. Doubtless, in such instances, some peculiarly fragile condition of the internal arterial tunic exists, which, though generally accompanied by opacity, thickening, and morbid deposits, is, nevertheless, not necessarily dependent on such lesions. Falls from a very small height have been known to rupture the internal coat, both of the thoracic and abdominal aorta, when this tunic appeared to be in a perfectly healthy condition(*a*).

Several of the patients stated that the first symptoms of the disease came on gradually and without any previous failure of general health. In cases of malignant tumours developed in the chest the contrary is the case. The local symptoms are observed to be consecutive on a generally deranged condition of the digestive and assimilating functions in particular, which eventually impresses on the countenance a peculiarly worn, sallow, and discoloured aspect. In the latter stages of aneurism, when sleepless nights, disturbed respiration, severe pains, combined, perhaps, with repeated hæmorrhages, have worn down the patient, he may ultimately present an appearance not unlike that of a person labouring under malignant disease. Yet still, both in cases of disease of the heart and thoracic aneurism, the prevailing expression is that of suffering, combined with an

(*a*) *Lancet*, 1813-4, p. 688.

undefined feeling of anxiety and alarm. In valvular diseases of the heart, however, we more frequently observe oedema of the eye-lids, and anasarca of the extremities, a semi-jaundiced tint of the general surface, and more decided marks of impediment to the general circulation. It would appear that an aneurism situated low down in the descending aorta, may expand in the posterior mediastinum, without producing the violent distress, so commonly observed in aneurisms of the arch, and cases have been published of the disease in this situation, where, even on the day before the fatal rupture, the patient, judging from his appearance was in the enjoyment of his ordinary health(a).

In the cases marked 2, 3, and 6, the muscular system was well developed, and in the second of these the complexion was florid. These, however, were exceptions to the appearance in the other cases, a certain degree of attenuation being perceptible in all. When the disease has existed for some time, this attenuation becomes evident, although I have not observed it to the same extent as in phthisis or malignant disease. Morgagni refers the emaciation in thoracic aneurisms to a probable obliteration of the thoracic duct from pressure of the sac (Epist. xvii. 14), and mentions that Valsalva once saw the lacteals in the mesentery turgid, in a case of thoracic aneurism. Santorini observed a similar fact (Obs. Anat. c. 9, sec. 11).

Although an aneurism may exist in the chest without betraying its existence by any external indication, yet in many instances, and in particular in aneurisms of the arch, several circumstances may be observed on the exterior of the chest which will lead to a suspicion of the mischief existing beneath. Among these a peculiar knotty, turgid, or congested state of the veins, either of one or both upper extremities, or of the superficial veins of the chest, is often a valuable indication of pressure on some internal trunk. This appearance of the

(a) See the discussion at the Westminster Med. Society on the death of Sir David Barry, M. D. *Lancet*, 1835-6, p. 264.

veins was manifest in eight out of the twelve cases alluded to in this paper, Nos. 2, 3, 6, 7, 10, 11, and 12. In some the veins were so turgid as to resemble hard cords, and pressure did not obliterate them. The colour was in general blue, but, in the eleventh case, it had assumed a darker or purplish hue. Bleeding did not notably diminish the tension of these veins, and the flow of blood from them was not always readily stopped. The stasis of blood has been found so great in some cases, that its temperature has sensibly diminished, and a separation of the fibrine has taken place during life within the vessels. A case is related by M. Ferrus where, when the radial vein was largely incised at the middle of the fore arm, some inches of fibrous clot were removed, and a jet of cold blood followed(*a*). I have seen cases where this venous congestion was limited to the situation of the tumour or to a short distance around it. As a general rule we may state, that the more localized or limited the congestion, the greater the probability of its dependence on the obliteration of a single trunk; the more general or unlimited, the greater the probability of its dependence on valvular disease of the heart. A kind of net-work with large spaces is sometimes the appearance that these veins present over aneurismal and other tumours. I have never seen any motion in them; but a case is alluded to by Mr. Key, where an undulatory motion in the inferior thyroid veins led to the suspicion and discovery of thoracic aneurism(*b*). This congestion sometimes disappears previous to death, as in case 12, owing, perhaps, to the conjoint effects of increasing attenuation and severe hæmorrhages, whereby the pressure of the tumour on the venous trunk is diminished. The trunk usually compressed in aneurisms of the arch of the aorta is the vena innominata, and a congested state of the superficial veins of the thorax and of both upper extremities is the result.

The existence of an intra-thoracic tumour may, according to

(*a*) *Acad. Royale de Méd.* vol. vi. p. 617, First Series.

(*b*) *Medical Gazette.* vol. iv. p. 289.

its situation, determine important modifications in the motions of the thoracic parietes. This is very frequently the case in aneurism of the arch. The phenomenon most usually observed is non-expansion of one side of the chest, in ordinary, or during forced inspiration. I have found it to be confined to the right side in one instance only, case 6, while in cases 1, 7, 9, and 10 the comparative immobility was evident on the left side. This immobility depends on pressure on the corresponding bronchus, and on examining various preparations of the disease, I have found the left far more frequently compressed than the right, a circumstance which admits of explanation by reference to the relative position of the two tubes with respect to the arch; but though we may sufficiently explain the comparative immobility of the left side, we have no means of knowing from what *portion* of the arch the aneurism arises.

When the trachea itself is compressed, and when the sac is large, the upper third of the entire chest exhibits a comparative immobility in the act of respiration, and abdominal respiration is strongly marked during the paroxysms of dyspnœa.

But absence of the normal motion of a particular portion of the thoracic parietes is not the only phenomenon which may be observed. The presence of an *abnormal* motion, though sometimes very slight, can be discovered very early in the disease. I use the term abnormal motion in preference to impulse, which implies the notion of a shock, at once visible to the eye and sensible to the hand. An aneurism, however, may exist without producing this kind of impulse; but it is rarely that a somewhat diffused expansive motion is not perceptible under the upper portion of the sternum, or above or below the clavicles. In general, either a true or sacculated aneurism springing from the anterior wall of the arch of the aorta, gives a very distinct impulse in one of the above mentioned situations; but when it originates from the posterior wall, the kind of motion to which I allude is all that can be detected till the sac has reached a considerable size. In eight out of the

twelve cases, this expansive movement existed, in some accompanied by a distinct shock, while in others the impulse was feebly, if at all marked, as in cases 5 and 9. To make this motion more evident, the following method was adopted:—The patient was desired to walk for a short time, so as moderately to excite the circulation without rendering the respiration tumultuous; he was then desired to stand and hold his breath. The chest was then examined laterally, the eye being directed across the infra and supra-clavicular regions, and over the superior portions of the sternum. A forward movement, arising from a force in the interior, distinct from that of the heart, was then clearly perceived. A very small amount of abnormal motion will thus be detected, either in these situations or in the scapular or inter-scapular regions. The chest should also be viewed vertically, and from behind forwards over the shoulders, and *vice versa*. The examination should be varied by placing the patient on his back and on his face, and if the eye be accustomed to this kind of observation, it is singular what a slight degree of expansive movement will be detected.

The sac had not penetrated the thoracic parietes, so as to present itself under the form of a defined tumour, in any of the cases except the sixth. In the majority, however, a certain degree of prominence or arching of the upper portion of the sternum or of fulness in the infra and supra-clavicular regions, sometimes extending to the neck, was more or less perceptible. Pressure over the seat of this fulness very generally gave pain, and occasionally demonstrated the existence of œdema. In the earlier stages of aneurism of the arch, which are making their way anteriorly, a slight, though notable, difference in the convexity or bulging of the clavicles or superior ribs may be detected by drawing the finger slowly along these bones, on both sides of the chest respectively, so as to institute a comparison. I have examined the sterno-clavicular articulation frequently in cases of aneurism, in order to ascertain whether the subjacent irritation produced a laxity of the

ligaments and partial dislocation, before a tumour or fulness became evident externally. My attention was drawn to this point by Dr. Stokes' observations on the state of the joint in some cases of phthisis; but I have never seen these phenomena till the tumour became apparent, and the cause of the laxity and partial dislocation, consequently, evident.

Except in the sixth and seventh cases, no œdema of the upper extremities existed; in the eleventh, anasarca of both upper and lower extremities was present; but in this case there was complication with valvular disease of the heart. Serous infiltration of one of the upper extremities frequently follows from the pressure of aneurismal tumours, and appears after the turgescient state of the veins has existed for some time. The same appearance may exist in both upper extremities, and even in the lower, when the disease has lasted a long time, or when the sac is large and the constitutional disturbance severe; as in the sixth case. General anasarca, therefore, will not serve to discriminate between valvular disease and aneurism, as it may follow either affection existing alone: very frequently, however, in the commencement of aneurisms of the arch, the anasarca is local and persistent. The safest general rule to lay down on this subject is, that in valvular disease partial anasarca is rare, and in aneurism common. Except an increased quantity of fluid in the pericardium, I did not find any evidence of serous effusion into the serous cavities. Coma from effusion into the ventricles of the brain is not uncommon, however, in aneurisms of the arch.

The above observations were such as could be collected from simple inspection of these patients, and manual examination of the thorax. I have arranged the phenomena under the respective heads of—1. General appearance of the individual, and the expression of the countenance. 2. State of the superficial venous circulation. 3. Non-expansion of particular portions of the chest, in ordinary or forced inspiration. 4. Abnormal motion of particular parts, not produced by modifications of the respi-

ration or action of the heart. 5. The existence of tumour, fullness or other irregularities on the surface of the chest. 6. Œdema of one or both upper extremities. To these, paralysis will in some cases be added,—which, however, did not exist in any of the cases here adduced.

I shall now proceed to consider the *symptoms*; and first that of dyspnœa. This existed in greater or less severity in all the cases. In the great majority it was the first, and in some by far the most distressing of the symptoms. It came on gradually, progressively increased, and finally ended in orthopnœa. Although difficulty of breathing was more or less complained of throughout the day, yet it was chiefly at night that a violent paroxysm roused the patient from sleep in all the terrors of impending suffocation. The same result ensued, in a great number, from lying on the back, which either induced a paroxysm or increased its violence. In the cases 4, 7, 8, 11, this symptom was particularly severe, and in these the tumour either lay at the bifurcation of the trachea, or projected into its area, a little above its division. In the seventh case, the combination of enlarged bronchial glands, and in the 11th, of valvular disease of the heart, with pressure on the pulmonary artery, contributed to render the paroxysms peculiarly aggravated.

Dyspnœa, then, must be considered as one of the most common symptoms of aneurisms of the arch, and for some time it may be the only one present. Its great frequency arises from a variety of causes, which may be thus enumerated: 1. From pressure on the trachea or its principal divisions. 2. From pressure on the pulmonary artery or its divisions, on the pulmonary veins, or on the auricles, the left being the most likely to be affected. 3. From pressure, stretching, or irritation of the pneumogastric nerve and its branches, particularly the left pulmonary plexus. 4. From mechanical impediment to the expansion of the lungs in consequence of the enlargement of the sac. From this last cause the lung may be compressed into a thin lamina, as Dr. Law ascertained on examination after death,

in the twelfth case. It is almost needless to add, that the dyspnœa will be aggravated by the complication of pulmonary disease, by tubercle for instance, which, however, is not common, and by bronchitis and emphysema, which are very frequent. To these may be added intercurrent pleurisy, which also frequently takes place.

A little consideration of the position and relative anatomy of the arch, with respect to the bronchial apparatus, the pulmonary vessels and nerves, will sufficiently account for the frequency, permanency, and early appearance of this symptom. Even aneurisms originating in the anterior wall of the vessel, will quickly influence some one of the parts above-mentioned, so as to impede free respiration. The only situation in which, from *a priori* reasoning, we might suppose dyspnœa of a paroxysmal character to be absent, is when the sac is low down in the thorax and not of large size. I have never met a case of isolated aneurism in this situation, which is certainly much rarer than aneurism of the arch, and, therefore, I cannot say what difference this situation of the sac, removed from the contact of the bronchial tubes, and the parts in connexion with the arch, would produce in this symptom. Some of the cases that have been published only mention "oppression of the breathing" when the sac has been found low down; but I know of no series of cases which has yet been published, to shew that aneurisms in this situation are attended by less violent paroxysms of dyspnœa than those of the arch.

Although impeded respiration is so frequent a symptom of the disease, it is, nevertheless, impossible to fix on any characters which will serve to shew its dependence on aneurism solely. Without, therefore, attaching any undue value to it, I shall merely state the following facts concerning the dyspnœa, derived from a consideration of these cases: 1. It was invariably present, and the paroxysms were violent. 2. The paroxysms chiefly occurred at night. 3. They were produced, in most of the cases, by lying on the back, although sometimes

also by change of position to one side (case 8). 4. They were apparently independent of atmospherical changes. 5. Their duration did not in any case exceed a period of two hours. 6. Attempts at deglutition sometimes induced them.

A stridulous sound heard during inspiration occurred in eight of the cases, sometimes in ordinary, but more frequently during forced respiration. (*Vide* cases 1, 2, 7, 8, 9, 10, 11, 12). The inspiration was prolonged, and the sound generally raucous and deep-toned. It was sometimes audible at a short distance, and on other occasions appeared to be broken into two or three inspirations, the larynx at the same time being drawn deeply downwards, and the hollow above the sternum becoming strongly marked. I have never heard a patient complain of a sense of constriction at the place where a bronchial tube was afterwards found to be compressed, as occurred in one of Andral's cases, where the tube was nearly obliterated, though not from the pressure of a tumour(*a*). The difficulty of breathing was mostly referred to the inferior portion of the trachea. Both dyspnœa and stridulous breathing diminish in intensity after free venesection, or if the patient survives a spontaneous hæmorrhage; the latter circumstance will account for the great diminution or disappearance of both symptoms before death in some cases. In well-marked instances of dyspnœa and stridulous breathing, I have found the longitudinal and transverse fibres of the bronchial apparatus hypertrophied.

The voice was modified in six cases; its general character was that of hoarseness, but it was occasionally shrill, clangose, whispering, and interrupted. I have never witnessed aphonia from an aneurism of the arch. The causes of these various modifications may be arranged under the following heads:

1. Alteration in the capacity, or torsion of the air tubes.
2. Compression or obliteration of the recurrent nerves.
3. Œdema of the glottis.

(*a*) Clinique Médicale, vol. i. p. 184.

With respect to the first, or alteration of the capacity of the air tubes, I have found that the compression of one bronchial tube is not necessarily followed by modification of the voice, as instanced in cases 1 and 3. An amount of pressure on the bifurcation of the trachea, sufficient to produce intense dyspnoea existed in cases 7 and 9, and, nevertheless, the voice was unaffected; while, apparently, a similar amount of pressure, in cases 8 and 11, produced a modification of it. It is not easy to account for this difference, unless we admit a slight œdema of the glottis or lesion of innervation as accessory causes in the production of the phenomenon.

From theoretical considerations we might infer that a tremulous state of the voice would result from either contortion of, or pressure on the bronchial tubes. Under such conditions the air must be thrown into vibrations; and certainly this tremulous sound is often manifest by the aid of the stethoscope, as I shall presently mention. I am not prepared, however, to state from my own experience what the exact nature of the voice will be when an aneurism has produced either contortion or pressure of the trachea or bronchial apparatus. I may mention, however, that Dr. Stokes brought before the Pathological Society an instance of variation of the voice from base to treble, in a case where the trachea was contorted and displaced in consequence of an aneurism of the arteria innominata(*a*). A similar contortion is mentioned by Corvisart(*b*); and a fine specimen of contorted trachea is to be found in the museum of the College of Surgeons(*c*); but the state of the voice is not mentioned in either of the latter cases.

Tumours in the interior of the chest, by engaging the recurrent nerve, will undoubtedly produce remarkable alterations in the voice. This is one of the oldest observations in pathology;

(*a*) Dublin Journal of Medical Science, former series, vol. xv. p. 303.

(*b*) Corvisart, third edit., case 52.

(*c*) Houston's Catalogue of the Museum of the Royal College of Surgeons in Ireland, B. C. 246.

and even before the time of Morgagni several examples were on record: an interesting one will be found in the *Sepulchretum Anatomicum Boneti*, under the title of “Vocis et Sermonis amissio é lapidibus, arteriam asperam et nervum recurrentem prementibus”(a). The observations, however, which have been made on the condition of the nerve, and on the muscles which it supplies, have been very scanty. Till very lately the specimens of thoracic aneurisms in our museums have been prepared with a view of exhibiting derangements in the arterial structure alone, while the important relations of the sac to the œsophagus, bronchi, nerves, &c., have been neglected, so that in the research I have made on this subject I have not been able to ascertain the nature of the lesions which the recurrent nerve may suffer, nor the subsequent lesions produced on the muscles of the larynx. In my own cases, I frequently found the nerve adherent to the sac, in cases where the voice had been modified during life; but I omitted to make a minute dissection of the larynx, which I now regret, as, I have no doubt, important changes in the muscular apparatus would have been discovered. Cruveilhier (*Livraison* iii.) gives a drawing exhibiting the left pneumogastric nerve reduced to a thin lamina; but there is no observation as to the state of the voice in the history of the case. An important dissection has, however, been made by Dr. Robert Todd, of the muscles engaged in vocalization, in a case of aneurism of the arch, where the left recurrent was flattened and compressed. He found several muscles to be atrophied on the left side of the larynx, so that in this case the alteration of the voice was satisfactorily accounted for(b).

Œdema of the glottis was observed in the 11th and 12th cases. In the former it was the consequence of inflammation extending upwards from the bronchial tube in a state of slough, but in the latter it was the result of venous congestion. Whenever the free return of the blood to the heart is impeded by

(a) Vol i p. 458. obs. 2.

(b) Lancet, vol. 2, 1840-1. p 400.

the pressure of the sac, we shall, perhaps, find this state of the glottis to exist, and whenever the superficial veins of the neck are much congested, the organ should always be examined.

Although the voice may be altered by any of these three causes, yet it is difficult to assign the character which pertains to each of them respectively. On the whole, I would be inclined to connect tremulousness and variation in the note, with indentation, displacement, and contortion of the trachea; feebleness of tone, with lesion of enervation and atrophy of the laryngeal muscles; and the raucous voice, with inflammation, thickening and œdema of the glottis.

The next symptom to be noticed is the cough. It was present in all the cases, and very similar in its character in each, viz., loud, ringing, paroxysmal, and occasionally dry. The paroxysm varied in duration; it was generally long and suffocative; but in the eleventh case it was short, and appeared to be arrested by the approach of syncope: this patient died in a paroxysm. A cough of the above description, and producing death in the same manner, will arise from any other tumour irritating the trachea and nerves, an instance of which I have published in the tenth volume of the former series of this Journal. Whenever expectoration accompanied the cough, which it almost invariably did towards the termination of the disease, it afforded no character of diagnostic value. Hæmoptysis occurred in two instances; but as I found no tubercles or other lesion of the lungs afterwards, I attributed this hæmorrhage to the pressure of the sac against the pulmonary veins. In many cases the cough and dyspnœa appeared simultaneously, and the former remained for a considerable time harsh and dry.

The nature and severity of the pain complained of, varied considerably. In almost every instance, however, that kind of pain which is indicative of irritation of the nerves existed in a greater or less degree. It was described as lancinating,

burning, or terebrating; at times appearing to originate in the centre of the chest, and radiate towards the circumference, at others to shoot along the trachea and neck, or towards the shoulders and upper extremities; in some cases it was accompanied by painful palpitations of the heart, and a sense of constriction about the chest; but not by any prominent acceleration of the pulse or other symptoms of fever. This pain was intermittent, but the periods of its access were not regular, and it was independent of atmospherical changes, but not of exercise, which most of the patients avoided. It was much relieved by anodynes, but particularly by belladonna, which was exhibited both internally and externally. The description given of this pain by the patients was always the same, so that its character could be recognized, and there was a degree of earnestness in the description very unlike that of persons who are merely feigning. I mention this latter circumstance, because, from their long complaining of this pain without any visible cause to account for it, four of these patients had been condemned as malingerers.

In the following cases, Nos. 1, 2, 3, 9, 10, 11, 12, the vertebræ were eroded, and pain of the above description was severely felt; in the tenth case the sac was but slightly attached to the vertebral column, but no ulceration had taken place, and in this instance the pain, though present, was certainly not so severe. There appears, therefore, to be a connexion between this pain, and some irritation at the roots of the sensitive nerves of the spinal cord. The effects of irritation, as evidenced by shooting pains and muscular spasms, existed in the generality of the cases for some time before the power of the upper extremities was impaired (in none of the cases was it completely lost). The spinal nerves, or rather their branches, may, however, be subject to compression, stretching, or other irritation, in any portion of their course, from aneurismal or other tumours, so that although neuralgic pains, in the great majority of instances, accompany the ulcerative process going on in the

vertebræ, yet they may exist independently of that lesion. If, therefore, pressure, torsion, or the other usual means, fail in detecting any tenderness of the spine, we should not hastily conclude that the patient is feigning.

We are to recollect, moreover, that irritation of the phrenic and pneumogastric nerves will be attended by pains of a similar character; intra-thoracic tumours of any kind will produce them; the most common are enlarged bronchial glands, with deposit of cretaceous matter, of which I have already published an example(*a*). Cancerous masses, enveloping these nerves, will also produce pains similar to those observed in aneurism(*b*). Like the other symptoms, therefore, these pains cannot be exclusively relied on as indicative of aneurism. They will be of great practical value, however, if they serve to awaken our suspicion, and induce us to make a physical examination of the chest.

In considering these pains, it is well to recollect that they frequently make their first appearance after an injury has been inflicted on the chest; that aneurism of the arch is far more frequent in males than females; and that the pains may exist for some time, without the patient exhibiting in his countenance the peculiar aspect of a person labouring under aneurismal disease. Whether the ulcerative process in the vertebræ is attended by a pain, *sui generis*, I am unable to say: Dr. Law appears to think it is(*c*).

In several of the cases, particularly in the sixth, pain of a decidedly inflammatory character made its appearance, and was accompanied by hardness and acceleration of pulse, with thirst and other symptoms of fever, which cupping and leeching relieved. This was caused by an intercurrent pleurisy or pneumonia, as was obvious from the stitch complained of in the side, and the existence of crepitus in the lung. In the sixth and eleventh cases these complications occurred frequently, and

(*a*) Dublin Journal of Medical Science, vol. x., former series.

(*b*) Archives Générales, vol. xix. p. 425; and Stokes on the Chest, p. 377.

(*c*) Dublin Journal of Medical Science, vol. xxv., former series.

were great additional sources of distress. Independently of these inflammations, the muscular and the tendinous structure, in short, every tissue in contact with the sac, may be successively inflamed, and give rise to this kind of pain. That the sac itself is subject to inflammation cannot be doubted, for of this fact the pus which is found sometimes in the clot is sufficient evidence. Inflammation of the surrounding structures will sometimes terminate in gangrene, as happened in the tenth case, where sloughing of the left bronchus took place.

Besides these different kinds of pain, both neuralgic and inflammatory, a certain degree of soreness or aching was also complained of, and arose from the tension of the muscles after violent fits of coughing.

In nine out of the twelve cases dysphagia existed. It is, therefore, one of the commonest symptoms of aneurism of the arch of the aorta. The impediment to the descent of the morsel was variously referred to the right sterno-clavicular articulation, to the top and centre of the sternum, and, in two cases only, to its inferior portion. In thoracic aneurism the dysphagia is deep-seated, or intra-thoracic; but, at the same time, a spasmodic stricture may exist higher up in the tube, as occurred in cases 3, 6, and 9, in which the patients occasionally referred to the situation of the cricoid cartilage as the seat of the dysphagia, whereas the autopsy shewed that no obstruction existed in that part.

Stricture from scirrhus or other organic lesion of the œsophagus within the chest, is sometimes accompanied by a similar spasmodic state of the tube higher up, and can be explained on the doctrine of reflex irritation through the spinal marrow. Dysphagia did not exist as a solitary symptom in any one of the cases; and in aneurism of the arch it is almost impossible that other symptoms should not accompany it, the most frequent of which are dyspnœa and paroxysmal cough. The concurrence of these three symptoms should always induce us to pause before passing a probang. I have already remarked that

the attempt to swallow brought on a paroxysm of dyspnoea in some cases; I have never seen the distress of breathing produced by swallowing so great as to induce the patient to refrain from food altogether; of which, however, Morgagni relates an instance in a woman sixty years old, who refrained from food and drink for six days, and died of starvation, preferring this death to the distress which attempts at swallowing produced(*a*).

Dysphagia is a symptom subject to variation, being more marked on one day than another, which, in all probability, depends on a spasmodic state of the œsophagus. It may also disappear altogether before death, as occurred in the twelfth case. This may arise either from the fundus of the sac inclining towards the right side, or, what more frequently happens, from hæmorrhage, which the patient may survive, and which will relieve the œsophagus from pressure. The extent to which the tumour may be reduced by copious hæmorrhage through the œsophagus is very remarkable. An interesting case of it is detailed by Dr. Samuel Cooper. The patient, who was a coal-porter, vomited three pints of blood, besides which a large quantity passed from the bowels. In eleven days he resumed his laborious occupation, and survived for nearly two months. After the first hæmorrhage the aneurismal tumour entirely disappeared(*b*).

But the degree of dysphagia does not so much depend on the size of the tumour as on the directness of the pressure on the œsophagus. The indentation or perforation of the tube by a sac containing solid coagulum, will, in particular, cause obstinate dysphagia; and when this clot is removed by mechanical means, very false views may be taken as to the cause of the obstruction. For instance, in an obscure case of aneurism

(*a*) Epist. xvii. sec. 25.

(*b*) See Medico-Chirurgical Transactions, vol. xvi.; see also Dr. Proudfoot's case, Edinburgh Medical and Surgical Journal, vol. xxii. p. 317, where an aneurism burst into the œsophagus, the patient lost from ten to fourteen pounds of blood, and yet survived for some time. These cases would tend to prove that hæmorrhage into the alimentary canal is the least dangerous kind.

the cause of the dysphagia did not appear to be recognized, and the probang was passed more than once. The patient, after one of these attempts at passing the instrument, brought up what was considered to be a piece of meat, and at another, several smaller pieces like shreds of beef. The ejection of this meat-like matter was followed by the power to swallow, and both patient and surgeon congratulated themselves that the cause of the obstruction, which was considered to be a portion of meat sticking in the œsophagus, was removed. A fatal hæmorrhage, however, occurred shortly afterwards(*a*).

Attempts at deglutition were attended by pain in many of the cases, but particularly in the third, fifth, ninth, and tenth, and in all these the œsophagus was adherent to the sac. Very painful dysphagia might induce us to suppose that adhesive inflammation was taking place, and that rupture into the œsophagus would probably occur. In general, fluids were swallowed much better than solids; most probably the inability to swallow the former depended on a spasm of the œsophagus.

The phenomena with respect to the pulse, which may be observed in cases of aneurism of the arch, may be thus arranged: 1. Weakness of the pulse in one or both wrists, in comparison with the impulse of the heart. 2. The pulse at the wrist later than the impulse of the heart(*b*). 3. Absence of the pulse. 4. Visible pulsation of the radial artery.

The pulse was weaker in one wrist in five of these cases, viz., Nos. 7, 8, 10, 11, 12, and in three of these the phenomenon was observed in the left wrist, which agrees with the observation of Corvisart, who states that the left pulse is more frequently the weaker. Nothing certain, however, can be collected from this symptom, either as to the artery affected, or as to the nature of the cause which produces the symptom. If weakness of the pulse in one wrist necessarily accompanied aneurism of the thoracic aorta, it would, of course, become a valuable symptom:

(*a*) *Vide* Medical Gazette, Old Series, vol. xv. p. 569, case by Sir Charles Bell.

(*b*) This has long since been proved to be the normal condition by Graves, Stokes, Hart, and Weber.—[Ed.]

it would, in fact, be pathognomonic. M. Magendie appears to think that this weakness must necessarily arise from the heart's action being expended on the sac, so that it fails to reach the branches of the trunk on which the aneurism is situated. In favour of this view he says, that in frogs a pouch is attached to the heart which acts like an aneurism, and in these animals the blood does not come in jets from the arteries. In fishes also the bulb of the aorta dilates into a sac or pouch, and in these animals likewise the blood does not flow in jets(a).

Unless, however, it could be proved that the heart and arteries of these animals and of man are the same in their anatomical structure, it would be unsafe to assume that similar effects would ensue, when the physical and vital conditions may be only apparently and not really similar. I have never met with a case of true aneurism, or simple dilatation into a sac, of the coats of the thoracic aorta, and uncomplicated with *morbus cordis*, where this theory could be fairly tested. In all the instances of weak pulse in one wrist depending on aneurism which I have met with, the phenomenon depended on the pressure of a sacculated or false aneurism on the main trunk supplying the upper extremities. This weak pulse, however, may arise from the pressure of other tumours, or from the obliteration of the main trunk, independent of any tumour. So many instances of this fact are now on record, that we cannot agree with Corvisart, when he states that weakness or obliteration of the pulse is one of the least equivocal symptoms of disease of the heart and great vessels.

Retardation of the pulse was only well marked in the eighth case, and I believe it is not common. When it occurs, however, it is more characteristic of pressure on the main trunk than a feeble pulse in one wrist, which latter may depend on a high division of the radial artery. Neither weakness nor retardation of the pulse in one wrist can be looked upon in any other

(a) Magendie's Lectures. *Lancet*, 1834-5.

light than as accessory elements for the diagnosis, as either or both may depend on causes distinct from the pressure of an aneurismal sac. No difference in the force of the carotid arteries at either side could be detected in any of the subjoined cases; but the diminished force of the pulsation of the carotid at one side, affords, in some cases, a symptom of equal value with that of a feeble pulse in one wrist, and depends on the same causes. The pulse was somewhat jarring in the eleventh case, but valvular disease of the heart also existed, and I have never witnessed this character of the pulse in thoracic aneurism unless it was complicated with some affection of the valves, principally with rigidity or ossific deposits.

A strongly marked visible pulsation in the radial artery was observed also in the eleventh case, but the aortic orifice was patulent. Dr. Corrigan has so fully established the value of this symptom as indicative of the above lesion, that it is almost superfluous to bring forward this case in corroboration of his views. Whether a simple dilatation of the coats of the aorta, or a true aneurism unaccompanied by valvular disease of the heart, may be followed by a similar character of pulse, I am unable to say, and in the absence of cases to test this question, it is better to avoid arguing on simple theoretical grounds.

Morgagni, in various places, notices the phenomena of visible pulsation in the arteries. In one case^(a) the existence of an aneurism was inferred from a violent pulsation in the heart, and vibrating pulsations in the carotid, temporal, and radial arteries. The only lesion found in the heart was a cartilaginous body in one of the three valves of the pulmonary artery near its edge. There was no dilatation or hypertrophy of the heart, and a few longitudinal sulci were the only abnormal appearances found in the aorta. He also quotes a case from Ballonius, of a young man who had long been subject to palpitation of the heart, "and in whom all the arteries were seen to have an evident pulsation in almost every part." In this

(a) Letter xxiv. 34.

case "all the valves of the heart and the great artery were found to be distended to such a degree, that the heart seemed to be three times larger than its natural size, or at least twice as large." In other cases he considered this visible and strong pulsation of the arteries to depend on a lesion of innervation, of which he gives examples(*a*). That some peculiar state of the nervous system will produce a visible pulsation of the radial artery, I have no doubt. I have seen it particularly in hysterical females, and in one case of chlorosis, where it was combined with a *bruit de soufflet* in the heart. In such cases it is often feebly marked, but in the patulous state of the aortic orifice, the character of pulse described by Dr. Corrigan is a constant symptom, and I have not found it in any case of true or false aneurism, unless accompanied with that disease.

Such were the general symptoms observed in these cases. The following is the order of frequency in which I think they will most usually be found to occur, viz. : dyspnœa and orthopnœa, paroxysmal cough, terebrating pains, dysphagia, modifications in the pulse, and modifications in the voice.

I shall now detail the physical signs observed in these cases, and first of percussion.

M. Piorry is of opinion that by the aid of the pleximeter, the early stage of aneurism of the arch of the aorta or its ascending portion can be detected more frequently than is generally supposed; and a dull sound on percussion, elicited at the point where the *bruit de soufflet* and impulse exist, has been considered pathognomonic.

In all the subjoined cases a dull sound was obtained more or less strongly marked under the upper half of the sternum, or at either side of that bone. Even in those cases where the sac was afterwards found to be small, not exceeding the size of an orange, as in cases 3 and 8, an appreciable amount of dullness could be detected in the above situations. In other cases,

(*a*) Epistle lxiv.. 10.

as in 6 and 12, the dull sound was not limited to the sternum, but extended over a large portion of the chest.

The interposition of a small portion of the lung between the sac and the parietes of the chest, will interfere with the results of percussion, particularly if the lung be emphysematous, when an abnormal clear sound will be produced. This was observed in the sixth case, and a similar observation was made by Dr. Law, in the twelfth case; and, on the other hand, a condensation of structure in the intervening portion of the lung, will equally give rise to an abnormal dull sound, as happened in a case related by Henderson, where "impaired percussion" and diffused impulse were caused by condensation of the anterior margin of the right lung, which was pushed under the sternum by effusion into the right pleura(a).

With regard to the subjoined cases, except in the sixth and twelfth, and in that which was complicated with hypertrophy of the heart, the extent of the dulness gave a pretty accurate measurement of the size of the sac. A well-defined and limited dulness under the upper part of the sternum, I would consider a sign of some value, as in the great majority of instances, it depends on true or false aneurism of the aorta, particularly the latter. Percussion invariably gave pain, even in those cases where no tumour was perceptible. In the earlier stages of tubercular deposition, the localized dulness and the increased action of the aorta, sometimes accompanied by a *soufflet*, may give rise to doubts concerning the diagnosis, but the different situation of the dulness, and the train of constitutional symptoms accompanying phthisis, will serve, independently of the stethoscopic signs, to distinguish them; and, moreover, aneurism of the aorta does not frequently coexist with tubercle of the lung. In the twelve cases here published, the complication did not exist, and of all the cases of aneurism hitherto presented to the Pathological Society, only four were found complicated with tubercle.

(a) Edinburgh Medical and Surgical Journal, vol. 43.

The phenomena observed from auscultation were first those discovered in the sac itself, and secondly, those detected in the lungs and bronchial tubes. The sound heard over the sac did not, in the majority of cases, present the character of a well-defined *bruit de soufflet*. In the third, sixth, and ninth cases, however, this sound was distinctly heard. It is difficult to account for the variation in this sign. I do not believe that its presence exclusively depends on the complication of valvular disease of the heart, for in the three cases just alluded to, no disease of this organ or of its valves existed, and many similar cases are detailed; besides we often detect a *bruit de soufflet* in aneurisms of the abdominal aorta; and looking at the physical conditions of the sac and its opening, when situated either in the thoracic or in the abdominal cavity, we can find no cause why, if the phenomenon is independent of valvular disease in the latter, it should not be equally so in the former case. Undoubtedly, when the opening into the sac is near the heart, and when the valves of that organ are diseased, any morbid sound is readily propagated, and will appear to be situated in the sac itself. This is particularly the case whenever the aorta is rigid and contains morbid deposits, when the sound is harsh and grating, as was observed in the eighth and eleventh cases. In every instance where a *bruit de soufflet* was heard, the aorta was more or less diseased; but I am not prepared to say how far this condition contributed to the production of the phenomenon.

In the remainder of the cases a certain degree of sound was heard, but not amounting to a distinct *soufflet*; it resembled somewhat the first sound of the heart, but could be clearly distinguished from it; and I believe that, in the great majority of cases, this or some degree of sound will be heard if attentively sought for. In other instances, however (and the same occurs in aneurisms of the abdominal aorta), no *bruit* whatever can be heard, and I have myself met with such cases. In these instances we may suppose that either the sac is filled

with solid coagula, or that a portion of fibrine plugs up the orifice, the method most frequently adopted by nature for the obliteration of the disease, and which Richter was the first to notice. The extent and condition of the opening may also effect modifications in the character of the sound; but on this head I am unable to say more than that in these cases where the *soufflet* was soft, the opening was round and smooth, and where a *bruit de scie* existed, apparently in the situation of the sac, I found the valves of the heart diseased and rigid, and the aorta containing morbid deposits. On the whole, I would consider a soft *soufflet*, the maximum intensity of which was found to be under the upper third of the sternum, or at either side of it, to be more indicative of a false aneurism than a sound of a harsh grating character, which very frequently will be found to depend on valvular disease, the abnormal sound being propagated to the situation just mentioned. This harsh sound may also depend on true aneurism of the arch, with osseous or cartilaginous deposits in the aorta. A loud *bruit* was heard between the scapulæ in the second, third, and eighth cases. The value of this sign when heard in this situation, and not in the precordial region, or anterior surface of the chest is evident, and was much relied on by the late Dr. Hope. I cannot, however, agree with him in stating, that the morbid sounds, the result of valvular disease, are not transmitted and heard between the scapulæ, for I have distinctly heard them in this situation; but I entirely agree with him when he states that a simple sound heard in the inter-scapular region, while the valvular sounds anteriorly are normal, is a sign of great value in the diagnosis of thoracic aneurism. It is not often, however, that a *bruit* is heard very distinctly in this situation; at least out of twelve cases I only discovered it in three. A loud *bruit de soufflet* in any portion of the arch, even when combined with an impulse distinct from that of the heart, is not decisive of the existence of aneurism. The late Dr. Houston detailed a case, where a manifest pulsating tumour, diastolic, visible to the

eye, and accompanied by a *soufflet*, was observed at the summit of the sternum, and had so many of the characters of aneurisms as to give rise to much variety of opinion. On examination, however, the heart and aorta were found perfectly healthy, and no aneurism existed; so that the pulsation must have arisen from nervous excitation, for which there appeared to be sufficient cause(*a*). I have already observed that a *soufflet*, accompanied by an impulse, is often observed in the arch of the aorta, or even in its branches, on the first deposition of tubercles in the lung; it is in fact very common, and in the cases in which I have observed it, the action of the heart was also strong, as if the irritation was propagated from the seat of the tubercular deposit to the central organ of circulation and its primary divisions; but in simple false aneurism, unconnected with disease of the heart, the *soufflet* and impulse, if present, are often found to coexist with a natural impulse of the heart, and normal sounds of that organ. The *soufflet* observed in cases of chlorosis I need not dwell on. The sex, the general aspect and character of the patient, independent of the diffuse character of the *soufflet*, will sufficiently point out its nature. That a malignant mass surrounding the pulmonary artery, will give rise to a bellows-murmer, is proved by Dr. Stokes's case(*b*). I had an opportunity of presenting to the Pathological Society a somewhat similar case; the cancerous mass projected into the pericardium, and a *bruit de soufflet* was audible during life. These instances are sufficient to point out the necessity of caution in assigning to aneurism a physical phenomenon, which may arise from any morbid product, developed around and compressing any of the intra-thoracic arteries.

In cases, therefore, where the general symptoms and physical signs indicate the existence of an intra-thoracic tumour, the occurrence of a bellows-murmur at a distance from the heart, can only lead to the inference that such a tumour ex-

(*a*) Dublin Hospital Gazette, vol. i. p. 157.

(*b*) Stokes upon Diseases of the Chest, p. 378.

ists, but cannot lead us to a knowledge of its nature. It might be supposed that, combined with the existence of impulse, dysphagia, &c., it would enable us to diagnose the presence of an aneurism; but in Dr. Stokes's case, in consequence of the disease being developed in the upper portion of the lung, these symptoms were actually present. In the case detailed by me, the malignant mass engaged the centre and inferior lobes, and the latter symptoms did not exist. The strength of the impulse, whether communicated to the hand or to the stethoscope, varied very much in the different cases. In some it was single, in others double; and the latter occurred so frequently as to convince me that any inference as to the seat of the lesion, founded on either character, is fallacious. I believe that the walls of an aneurismal tumour are endowed with elastic and resistant properties, and that the double impulse is the result of these properties. In all these cases in which a sharp and defined shock was given to the instrument, the aneurism was of moderate size, and its interior only partially occupied by coagula. In those cases (as in 7 and 12) where the sac was of large size, and contained thick layers of coagulum, the phenomenon consisted more in a heaving out, as it were, of some large portion of the thoracic parietes, and the cause of this expansive movement could scarcely be mistaken. I have never had an opportunity of examining a multilocular aneurism, so as to ascertain what modifications this peculiar variety would confer upon the impulse.

[Having thus briefly considered the individual symptoms as they occurred in each of the subjoined cases, and also the physical signs, as far as concern the sac itself and the phenomena of percussion, we shall in a future Number consider the auscultatory phenomena which were discovered in the respiratory organs, and also enter more at length into the subject of diagnosis. In the meantime, we beg to refer our readers to the annexed Table, which exhibits the symptoms and condition of each case in detail.]

(*To be continued.*)

A TABULAR VIEW

OF

THE PRINCIPAL SYMPTOMS AND PHYSICAL SIGNS IN THE TWELVE CASES OF ANEURISM

ALLUDED TO IN DR. GREENE'S PAPER.

[To face page 30.]

History, Appearance, &c.	Age.	Tumour and Impulse.	Dyspnoea.	Cough and Voice.	Dysphagia.	Pains.	Heart and Pulse.	Respiration.	Percussion.	Auscultation.	Post Mortem Appearances.
1. Michael Hughes (a), a butler, stout and well made. Attributed his pain to cold from sleeping in a damp apartment. Death from rupture into left bronchus. Whiteorth Hospital, May, 1854.	38	No defined tumour, but visible motion for- wards of upper portion of sternum; double impulse to stethoscope here.	It was the first symptom complained of; gradually increased in severity; paroxysmal; ended in orthopnoea.	A constant cough; shrill and croupy; expectoration frothy; finally purulent. Voice.—Natural.	None.	At first wandering about chest; finally terroring and radiating in various directions from the upper portion of chest; duration about a year.	Impulse and sounds natural; pulse 86; the same in both wrists.	Stridor on forced inspiration; feeble murmur in left lung, loud in right axilla. The right side more expanded in inspiration. Voice reverberating in right only.	At first the whole chest sounded clear; finally dulness under left of sternum and left clavicle.	No bruit at first detected, but finally a rough one under left of sternum and left clavicle, but only after smart exercise.	A false aneurism, the size of a large orange, sprung from the commencement of the descending portion of the thoracic aorta, lined with coagula. Opening of the sac smooth and round, about the size of a half-crown. The tumour pressed against the left bronchus, which was narrowed and penetrated by the aneurism. Omentum portion of third and fourth cervical vertebrae crossed. Aorta dilated and aneurismatic. Heart and valves sound.
2. Luke Moran, a sawyer; worked always at the top of the frame. Venous chest knotty. Death from rupture into left bronchus. Whiteorth Hospital, April, 1853.	30	No defined tumour, but a fulness under clavicle; visible motion of upper portion of sternum forwards. Double impulse here.	It was the first symptom complained of; chiefly on lying down at night; finally orthopnoea; paroxysmal.	Primarily at night; in paroxysms half an hour long, and threatening suffocation; unable to exercise, because it brings it on. Croupy. Expectoration frothy. Voice.—Rough.	Some, but not accompanied by pain; referred to the top of the sternum.	Pains of a severe lancinating character in and around the chest. Intermitting.	Impulse and sounds natural; pulse 80; the same in both wrists.	Stridulous; larynx drawn deeply downwards in inspiration; murmur feeble in left lung. Under left clavicle voice and inspiration laryngeal.	Dulness at upper third of sternum, apparently not greater than at precordial region.	No bruit detected under sternum or clavicle; but a distinct one down the back, opposite fourth and fifth dorsal vertebrae.	Two sacculated aneurisms. The first, at the beginning of the descending portion, was the size of a small orange, the interior lined with coagula; it lay against and flattened the left bronchus, and also opened into it. Coagulae slightly adherent to it; aneurismatic deposits in the aorta. A second larger sac, four inches lower, adhered to and elevated bodies of vertebrae; also adhered to left lung posteriorly. Heart and valves sound.
3. Anne Lee; full habit; florid complexion; fell down a flight of steps two months previous to her admission. Veins on chest turgid. Death from a fit of dyspnoea. Whiteorth Hospital, Jan. 1853.	27	A distinct elevation of the upper third of sternum, combined with a double impulse here and under clavicle, particularly on left side.	Severe, particularly at night, in paroxysms, threatening suffocation; finally orthopnoea.	Loud, harsh, ringing, nearly incessant; expectoration copious and frothy. Voice.—Natural.	Stoppage of morsel at upper third of sternum, sometimes referred to situation of cricoid cartilage. Pain on attempting to swallow.	Of a darting character from spine round chest. Tenderness on pressure of the third and fourth dorsal vertebrae.	No abnormal sound in heart; impulse natural; force of radial arteries the same; pulse 88; left jugular vein turgid.	Larynx drawn deeply downwards; respiration in left lung feeble, sometimes inaudible; tracheal under clavicle.	A clear sound obtained over the whole chest.	A distinct bruit de soufflet noted at three examinations under upper third of sternum; also on the left of third dorsal vertebra.	A sacculated aneurism high up in the descending portion; irregular shape; about the size of an orange; a portion of it lay against the bronchus, which is narrowed; the main portion crossed the spine to the right; third and fourth vertebrae also crossed; coagula in the interior; aneurismatic in aorta, but very few; coagulae adherent to sac; no disease of heart.
4. James Burke, labourer; subject to a violent cough for two years; could not ascribe any cause for it. Death from rupture into trachea. Whiteorth Hospital, Feb. 1854.	40	None observed.	Urgent, particularly on taking exercise.	Severe; in paroxysms; worse at night; threatened suffocation; expectoration copious and frothy.	None.	None complained of.	Nothing abnormal noted.	Laryngeal under right clavicle. Voice very resonant here.	No dulness detected.	No bruit detected; very loud sonorous rales throughout both lungs.	Two sacculated aneurisms arising from posterior wall of transverse portion of arch; one penetrated the trachea an inch above its bifurcation; the other arose between the left carotid and subclavian, formed an oval tumour in oesophagus. Vertebrae not elevated. Heart and valves sound.
5. Laurence Duffy, labourer; stated he had enjoyed excellent health till a few months before admission. Death from rupture into right pleura. Whiteorth Hospital, July, 1853.	43	None observed; impulse not perceptible.	Not complained of.	Cough in paroxysms; worse at night; expectoration tinged with blood. Voice.—Natural.	Stoppage of food corresponding to centre of sternum; pain on attempting to swallow.	None complained of.	Nothing abnormal observed.	No alteration in the respiratory murmur observed.	Chest yields a clear sound throughout.	Nothing particular observed.	A sacculated aneurism in the descending portion of aorta, ruptured the right pleura; sacs considerable; bronchial tubes not indented; heart and valves sound; coagulae adherent to sac.
6. Peter Blake; tall and muscular; a private in a dragoon regiment; had drunk freely; received a violent kick from a horse between the shoulders four years back. At that time unusual in his look; finally distention of jugular and external carotid veins, with oedema of eyelids. Death from hemorrhage into the left pleura. Whiteorth Hospital, March, 1853.	30	No tumour or elevation at first perceived; impulse at junction of first and second bones of sternum. Finally lessened here; but the whole of the back appeared to be heaved out.	Came on gradually, and ended in excessive orthopnoea.	Cough at first dry; afterwards loud and ringing. Voice.—Natural at first; finally hoarse.	Stoppage of food referred to right sternoclavicular articulation, nearly where the inspiration appeared to be arrested; at other times higher up.	At upper third of sternum; shooting towards spine; moderate at first, but finally terroring, cutting, and shooting round and through the chest.	Palpitations on the least excitement. Impulse and sounds of the heart natural; pulse in both wrists the same, 72 at first, finally 100. Finally heart's action heard on the right side.	Impediment appeared to exist in right bronchus; overtones by forced inspiration. Murmur feeble in right axilla and under clavicle than in left. Non-expansion of the right chest on inspiration.	Dulness at first confined to upper third of sternum. Finally, over nearly the whole of left side.	Bruit de soufflet occasionally heard anteriorly, in the situation of the impulse.	A sacculated aneurism arising half an inch from origin of left subclavian, on posterior wall of arch; it stretched downwards for seven inches, behind the left pleura costals, which was lacerated. Ulceration of vertebrae from the second to the ninth. Interior filled with a dense coagulum; the right bronchus flattened; coagulae adherent to sac; left ventricle contracted. No disease of substance or valves of heart. Stenosis of descending aorta. The sac had lacerated the mediastinum and heart towards right chest.
7. Antony Kelly. No distention of jugular and external carotid veins of chest. Death in a paroxysm of dyspnoea. Whiteorth Hospital, Dec. 1854.	27	No defined tumour on chest.	Progressively increased; finally, orthopnoea, in paroxysms.	In paroxysms; laryngeal. Mucous expectoration tinged with blood. Voice.—Natural.	Stoppage to the descent of food for some time.	Pains extended from the right nipple to the arum, with numbness of the latter, and oedema.	Impulse and sounds natural. At first the pulse in both wrists the same. Finally the right a little weaker.	Feeble throughout left lung. Loud in right, with bronchial rales. Respiration stridulous. Non-expansion of left chest.	Dulness from left nipple upwards.	No soufflet audible in any part of the chest.	A true aneurism arising at the junction of the ascending with the transverse portion. The tumour (size of orange) lay in front of the bifurcation of the trachea. Sac consists of dilatation of all the coats. Interior filled with coagula; the opening admits four fingers. Trachea and left bronchus indented. Heart and valves sound.
8. Mary Hastings. Manner morose and restless; would not give any account of herself; had been in many hospitals. Turgescence of jugular and superficial veins of chest. G.D.S.M. of arms. Death from dyspnoea. Whiteorth Hospital, Dec. 1857.	40	No tumour, but slight motion of upper bone of sternum forward. Impulse here to hand and stethoscope.	Very great; leans to left side when about to expectorate.	Cough paroxysmal; and copious. Expectoration of mucous matter. Voice.—Feeble and whispering.	Stoppage to the descent of food; duration unknown.	Did not complain of pain, except on pressing spine between the scapula opposite the third dorsal vertebra; numbness of the fingers.	Impulse strong. A harsh bruit de souffle with first sound. Pulse a little weaker in left than right wrist, and somewhat retarded.	Nearly equal in both lungs; stridulous under both clavicles; somewhat weaker in left side. Voice very tremulous and blurring through stethoscope about clavicles.	No perceptible dulness.	No soufflet detected. A loud bruit de souffle under upper third of sternum, heard also between the scapulae, and in region of heart.	A false aneurism near the junction of the ascending with the transverse portion. The sac about the size of a small egg. The opening oval, about an inch diameter, and with smooth round edges. The fundus projected into the trachea an inch above its bifurcation. No apparent difference in the size of the two branches. Bronchial glands enlarged. Mitral and semilunar valves cartilaginous. Left ventricle hypertrophied.
9. John Mullens. In the army twenty-one years; served in India; frequently salivated for syphilis; drank freely; discharged for incurable dyspnoea. On admission pale, anxious, and thin; the skin somewhat yellow. Veins of left arm and exterior of the chest congested and knotty. Death from rupture into oesophagus. Whiteorth Hospital, Jan. 1853.	43	No visible tumour or any impulse distinct from the heart any where perceived.	Disease commenced with dyspnoea, which gradually increased; worse by lying on his back or left side; ended in orthopnoea.	Loud and ringing. Expectoration frothy and copious. Voice.—Natural.	Impediment to the descent of the morsel sometimes referred to the top, sometimes to the lower end of sternum; sometimes to the situation of larynx; painful.	Described as deep, burning, and burning, penetrating through and around the chest, which no treatment relieved.	Impulse natural; an obscure soufflet with first sound. Pulse 80; the same in both wrists.	Accompanied with loud stridor. Remarkably feeble in left axilla and under left chest, with non-expansion of left chest and feeble resonance of the voice to the hand laid on it.	Equal resonance anteriorly; some relative dulness posteriorly about the third dorsal vertebra on the left side.	A loud bruit de souffle on inspiration under left clavicle; a very obscure soufflet in the same situation. Deep-tended sonorous rale in left lung.	A false aneurism at the commencement of the descending portion of the aorta; size of an orange; the opening an inch in diameter, with smooth border; the interior filled with coagula. It had burst into the oesophagus, close to where that tube passes through the aortic arch; the sac was placed between the trachea and oesophagus, the former posterior, the latter anterior to it. It extended across the vertebral column, but by chiefly to the left side of the spine. The left bronchus was flattened; some opacity of aortic valves; aneurism in the aorta. Bronchitis.
10. Michael Dering, a labourer; had been of very intemperate habits, particularly in drinking; had syphilis and had been salivated. Veins	46	No distinct tumour, but the upper third of sternum appeared to be moved slightly forward. A double	Inconsiderable at commencement; but constant for some time before death.	Slight at first; finally, with excessively frothy expectoration. Voice.—Weak and broken down before death.	Impediment to the descent of food referred to near the top of the sternum. At times worse than when the hand was before.	Began in neck and shoulder; extended over chest; intermittent; lancinating.	Impulse and sounds natural. Pulse 80; the left pulse weaker.	Larynx drawn downwards in inspiration. Breathing laryngeal. Murmur feeble in right axilla and under left chest, with non-expansion of left chest and feeble resonance of the voice to the hand laid on it.	Dulness under upper third of sternum, and under left clavicle.	A loud laryngeal rale under left clavicle. A deep-tended sonorous rale heard to lower left arch. Aneurism in aorta. Left lung gangrenous.	A false aneurism arising from the arch, size of a large turkey egg; the opening would admit three fingers; the edges smooth, partially filled with coagula; slightly adherent to spine. Left bronchus compressed, and in a state of slough; the inflammation extending to larynx. Coagulae adherent to lower left arch. Aneurism in aorta. Left lung gangrenous.

ART. II.—*Some Observations on uterine Polypi and Ulceration, with Cases.* By W. F. MONTGOMERY, A.M., M.D., M.R.I.A., Professor of Midwifery to the King and Queen's College of Physicians in Ireland.

[Read before the Dublin Obstetrical Society.]

THERE is, perhaps, no disease to which women are liable possessing greater claims on the attention of the accoucheur physician than polypus of the uterus. Its great frequency, often under circumstances where no suspicion is entertained of its existence, and the consequent neglect, or mistreatment of symptoms by which the patient's health is gradually, perhaps rapidly, undermined, and a state of misery and prostration induced, under which she sinks into a premature grave—the brilliant success which so generally attends the performance of a comparatively simple operation, even though resorted to under circumstances apparently hopeless, and the consequent restoration of the sufferer to perfect health and its attendant blessings—are all considerations which invest this subject with an unusual degree of interest and importance.

Urged by such considerations, and having, especially within the last year, seen and treated a good many cases of this disease (of which I find, on reference to my notes, that I have had, from time to time, thirty-two instances under my care, on thirty of which I operated by different methods), some circumstances presented themselves to my observation, a record of which, I thought, might not be without utility.

I beg to premise, however, that there are very many points of interest connected with the subject of uterine polypi, which are altogether unnoticed in this paper. The circumstances under which it was originally drawn up, did not admit of its being extended to such a length as would be necessary for a complete account of this important disease; nor did I at all contemplate writing a systematic essay on the subject, but

simply proposed to notice a few points connected with cases as they occurred in practice. At some future time I may again resume the topic in a similar way.

During the year 1845, I operated seven times for ordinary benign polypus, and once for a malignant polypoid growth of the cauliflower excrescence kind, viz., three times by ligature, three times by torsion, once by excision, and once by caustic. All the cases of benign polypi did well. In that of cauliflower excrescence, the operation by ligature was eminently useful, but the disease returned. The following are the particulars of this case :

CASE I.—*Cauliflower excrescence of large size removed by ligature; re-establishment of health for some months; re-production of the disease.*

The patient was about sixty years of age, and was seen by me in consultation with Dr. Willis. The tumour was large, and the disease was making rapid inroads on the constitution by the profuse bloody and serous discharges which it produced. On the 22nd of May I passed the ligature round its base, and included a portion of the cervix, from which the tumour sprung, and in five days the tumour was separated and removed; the result was, to a certain extent, most gratifying and successful. Within a month, the patient's health was perfectly re-established, and on paying her a visit in July, she told me that she was, to use her own words, "as well as ever she was in her life," and *without the slightest discharge, or any other symptom of the disease;* and she so continued *for fully three months subsequently.* But in the month of October the discharges began again, and when I visited her in December, the tumour had attained its former size; I proposed to remove it again by the ligature, but she was unwilling to submit to the operation a second time.

About a year ago, I announced to the Obstetrical Society, the success of a similar operation on a patient whose case was well known to several gentlemen then present; and I beg to

say that now, after the lapse of nearly three years, the patient has had no return of the disease(a).

When detailing the particulars of that case, I ventured to urge the propriety of operating on these cauliflower excrescences by ligature, "even though it should not succeed in effecting a complete cure ; because, beyond all question, a great improvement is thereby, in general, produced in the condition of the patient. The discharges, if not altogether removed, are greatly diminished, and a decided improvement in the strength and general health often follows with surprising rapidity, and continues sometimes for months." This opinion is, I think, borne out by the results of the case just related.

Before proceeding to the relation of the next case, I beg to call attention to a point in connexion with this subject, which deserves especial notice, viz., that polypus, even when of very small size, is frequently accompanied by ulceration of the labia of the os uteri ; this combination will be noticed in several of the cases to be hereafter detailed.

These ulcerations are, I believe, in general produced by the polypus, or owe their existence to its formation, rather than to the operation for its removal, which, however, may occasionally produce such an effect ; they will sometimes heal without treatment on the removal of the polypus, but, as frequently, they will not : it should, therefore, be a rule to examine such cases with the speculum before we pronounce them quite well, lest we should only cure the patient of one-half of her disease, and leave her to the consequences of the other.

Dr. J. Henry Bennett has called attention to this fact, and brought forward some illustrative cases in a paper which appeared in the *Lancet* last year.

CASE II.—*Small polypus accompanied by symptoms of pro-*

(a) For the full details of this Case see vol. xxvi. p. 402, of the former series of this Journal; and I wish to add that now (May, 1846), after more than three years, this woman remains free from any return of the affection.

lapsus uteri; ulceration of the os uteri; removal by excision; hæmorrhage; cure.

This lady, whose age appeared to be rather beyond fifty, had exhibited symptoms of uterine disturbance since the year 1837, which were attributed to prolapse of that organ; but, at that time, she discovered what she called "a small excrescence on the womb," and which she ascribed to having worn a pessary too long. This excrescence was ascertained to have gradually increased in size up to the time of my seeing her, in May, 1845, when she arrived in town, still complaining of symptoms of prolapse, or bearing down, with leucorrhœal or muco-purulent discharge, but no hæmorrhage. For a year before, menstruation had ceased altogether; her general health was tolerably good, with the exception of some dyspeptic and nervous annoyances.

On examination, I readily detected a small polypus at the os uteri, which, instead of being prolapsed, was unusually high up; the polypus was about the size of a large Windsor bean, and not unlike it in shape, attached by a very short pedicle, not thicker than a wheaten straw, and springing from the margin of the anterior lip of the os uteri; the morbid growth was soft, presented several small lobuli, and was partially vesicular; its colour was deep carnation, and its surface exhibited several vessels: the margin of the os was ulcerated.

On the 13th May I introduced a plain metallic speculum, into which the os uteri and polypus entered readily, and with a long pair of scissors, I snipped the pedicle across, and removed the polypus; and as the spot where it had grown seemed inclined to bleed more than I liked, I applied a pencil of nitrate of silver, which arrested the bleeding for the moment, but it soon returned, and I thought it advisable to plug the vagina. I afterwards applied styptic liquor, but notwithstanding, the draining of blood went on for the whole of that day, and the next; not, indeed, to any amount likely to be very injurious, but quite enough to keep me uneasy, and to make me resolve

in future to twist off these small polypi, instead of cutting them, as I had previously done with impunity.

On examining the os a few days afterwards, I found the ulceration as when first seen, and touched it with nitrate of silver: the lady would not wait in town for the complete cicatrization of it, but set out on a long journey to the country, and then on an excursion to Cheltenham, the result of which was, that the ulceration was not quite healed until the month of September.

In this case, there are three points worthy of observation:—first, that the symptom which attracted the patient's attention was that of prolapse (for the cure of which a pessary had been introduced), which, however, did not exist. Secondly, that, although the polypus had long existed, it caused no hæmorrhage. Thirdly, the long-continued bleeding from the remains of its small pedicle, after its division by the scissors.

Dr. Henry Kennedy, some time since, kindly gave me his notes of a case in which he had seen the division by the knife, of the pedicle of a polypus, not thicker than a common quill, followed by such an amount of hæmorrhage, as to endanger the patient's life.

The next case to which I shall refer, was one which strongly attracted my attention to the influence which even the very smallest polypi, at the os uteri, may have in giving rise to and keeping up, profuse menorrhagia, accompanied by ulceration.

CASE III.—*Very small polypi at the os uteri, producing profuse menorrhagia and ulceration; removal by torsion; cure.*

The patient in this case was a young woman, aged twenty-five. She had been married more than a year; had no child; was affected with almost constant menorrhagia, without any pain, under which she had become completely exsanguined; her whole surface was of a corpse-like white, and partially œdematous; she was greatly enfeebled; her appetite very bad,

and her stomach irritable; altogether she was in a most miserable, broken-down state. To the *touch*, the os and cervix uteri felt natural, both as to size, figure, and consistence; but the margin of the os had an indistinct velvety feel, which led me to suspect a slight ulceration, and to use the speculum, which disclosed two very small polypi, not larger than grape stones, and attached by pedicles immediately within the os uteri, the margin of which was slightly ulcerated.

I caught these growths with a forceps, and twisted them off, and with a pencil of lunar caustic, cauterized the spot from which they grew, and the ulcerated surface also, which, after a few similar applications, healed.

She was allowed generous diet, and took preparations of iron with gentian; and within two months was quite well, and so altered in her appearance, as hardly to be recognised by her friends on her return home from the hospital. This woman had been long under treatment for her state of ill health, and had taken much medicine; but the local cause of the debilitating drain had escaped observation. Its recognition at once suggested the appropriate treatment, which speedily and safely effected a cure.

In the foregoing case, as in the two following, the polypoid growths were, on account of their very small size and situation, not discoverable by the touch, and would certainly have escaped detection had the part not been brought into view by the speculum.

CASE IV.—*A very small polypus at the os uteri, causing profuse menorrhagia, with ulceration; removal; cure.*

I was requested to see this patient on the 4th of October, 1845; she was about fifty years of age, and fourteen years a widow; she was affected with profuse menorrhagia, and slight semi-purulent discharge; she was blanched, and had pains in the back and loins.

By the touch, no appreciable alteration in the os or cervix uteri, as to size, figure, or consistence, could be detected; but

the margins of the os felt velvety. On applying the speculum, a superficial ulceration was seen, surrounding the os uteri, to a breadth of about one-eighth of an inch all around, and on applying a brush to wipe away the muco-pus from between the labia of the os, a small polypus, about the size of a pea, appeared, attached by a pedicle. Not having a proper forceps at the moment, I merely touched the part over with lunar caustic, intending to twist off the polypus at my next visit.

October 9th. On bringing the parts into view, I found that the body of the polypus was gone, and only its pedicle remained, which I believe to have happened in the management of the speculum, which I found considerable difficulty in adjusting, so as fully to expose the os; the remains of the pedicle I twisted off, and cauterized the ulcerated surface with nitrate of silver; cicatrization soon followed, and the menorrhagia ceased. The words of Gooch might be, with propriety, applied to this and the preceding case—"That the hæmorrhages depended on the polypus, however small, was proved by the event, for they ceased on its removal."

CASE V.—*Encysted ovarian tumour; tumours in the labia pudendi; two small polypi at the os uteri, with considerable ulceration; torsion; cauterization; cure of polypi and ulceration.*

This lady, aged about 50, requested me to visit her on the 30th of April. She had had dysentery in the December previous; and since then has had, in addition to other symptoms, great irritation of the mucous membrane of the stomach and digestive canal; her tongue was cherry red, glazed, and tender at the edges; and she had tenderness on pressure over the epigastrium; latterly she had had irregular hæmorrhages, and muco-purulent discharges, with bearing down, erratic pains about the pelvis, and also external pruritus.

For some years she had had an encysted tumour in each of the labia pudendi, one of which, having lately become very troublesome, had been operated on and removed. On exa-

mining the abdomen I readily detected an encysted tumour about the size of an orange, just above the edge of the pubis, quite moveable, evidently filled with fluid, and having all the characters of an encysted ovarian tumour.

On examination per vaginam, I found the cervix uteri enlarged and somewhat indurated, and the portion of it around the os gave the sensation of ulceration.

The anterior lip of the uterus was much rounded; and towards the right side, and just within the margin of the os, I felt a small moveable body attached to it, apparently a small polypus. At my next visit, May 2nd, I used the speculum, and found a large superficial ulcer, the size of a shilling, around the os, three-fourths of the ulceration being on the anterior lip, springing from which appeared a small polypoid excrescence, about the size of a garden pea, which, together with the whole surrounding uterine tissue, was very vascular.

With a forceps constructed for the purpose, I caught the excrescence and twisted it off; after which, I touched the spot from which it had grown, and the whole ulcerated surface, freely, with the nitrate of silver.

This was repeated, and the ulceration very quickly began to heal, and much progress was made, both in this respect, and in the diminution of the enlarged cervix, when, to my surprise, on using the speculum on the 14th, I perceived another very small polypus come down near the left angle of the os, moving freely when touched, and attached by a pedicle apparently from a quarter to half an inch in length—in this respect differing from the polypoid excrescence of the opposite side, which was not pediculated; the one now discovered presented exactly the characters of the pediculated vascular tumour of the orifice of the meatus urinarius, except that it was quite insensible.

I twisted this growth off as I did the other, and cauterized

the spot from which it grew, after which, and a few more applications of nitrate of silver solution, cicatrization was accomplished.

I wish here to observe, in proof of the extreme difficulty of discovering these very small polypi by the touch, that in this case, even after I had seen the second one, and thus knew its exact situation, I could not recognize its presence by my finger.

CASE VI.—Small raspberry polypus, incidentally detected in connexion with extensive ulceration; induration and retroversion of the cervix uteri; torsion; cauterizations; cure; pregnancy, and safe delivery.

I saw this lady, in consultation with Dr. Johnson, in October 1843. She was the mother of four children; and had at this time complained of the existing symptoms for about a year and a half, viz., sharp pains across the lower part of the abdomen, in the back, loins, and hips, shooting also along the thighs, with leucorrhœal, or, more properly speaking, muco-purulent discharge, and occasional dysuria; menstruation regular; no pruritus; digestive functions greatly deranged; felt debilitated, and general health very much broken up.

By the touch, the cervix uteri was found voluminous, indurated, and partially retroverted; os uteri soft, pulpy, and tender. The speculum disclosed a very extensive ulceration, engaging both lips of the os uteri, but principally the anterior, which was considerably enlarged and prominent; the ulcer was bathed in muco-pus, which, being wiped off, shewed numerous deep red prominent granulations, covering the whole surface of the sore.

This was all that presented itself on the first occasion of using the speculum, by which the parts were fully seen; but, on the second time of applying that instrument, we were surprised by the descent of a polypus, exactly of the figure, size, colour, and appearance of a small, ripe, red raspberry, which came into view suddenly, as if at the instant released from con-

finement within the swollen labia, in consequence of their separation by the expansion of the blades of the speculum; it was attached a little way within the margin of the posterior lip.

This small polypus was at once twisted off, and the ulcer carefully cauterized, in the first instance, with the nitrate of mercury, afterwards, at suitable intervals, with nitrate of silver; the tepid bath was frequently used, together with medicines to improve the state of the digestive organs, aperients, rest in the horizontal position, &c., &c.; and at the end of about three months the lady was quite well. She then returned home to the country, soon afterwards conceived, and, at the full time, was safely delivered of a living child.

It is to be observed, that in this case, the little polypus escaped detection under the most carefully conducted digital examination, both by Dr. Johnson and myself; and, what is still more remarkable and worthy of observation is, that it was not discovered until the second time of our using the speculum.

These two cases, as well as the one which I shall next notice, suggest a practical caution of some importance, viz., that we should be very careful how we pronounce a decided opinion, *until we have used every available means*, by which we can inform ourselves accurately, of every point which may either affect the correctness of our diagnosis, or influence the kind of treatment to be adopted.

CASE VII.—*Very small polypus, accompanied by extensive ulceration and thickening of the cervix uteri; cure of both by caustic, scarification, &c.*

I was consulted by a widow lady, the mother of one child, who, owing to domestic bereavement, and the fearful apprehension of malignant disease, was most pitiably depressed both in mind and body: the symptoms which she detailed were severe in their character, and calculated to excite alarm. She had sharp pains in the back, across the lower part of the abdomen, and down the thighs, with occasional dysuria, irregular and

profuse menstruation, bearing down, and a semi-purulent discharge. She was very much enfeebled, and her nervous system so shattered, that she could hardly reply to the most ordinary question about her health, without bursting into tears.

She assured me that she "knew quite well that her days were numbered, for that she had either cancer, or at least a polypus;" from which latter disease a friend of her's, she said, had suffered long and severely, and with exactly the same symptoms as those under which she was herself then labouring.

I examined her with the finger only, in the first instance (circumstances at the moment not allowing the use of the speculum), and assured her that she had neither cancer nor a polypus, but merely a superficial ulceration of the mouth of the womb, of which I would, without doubt, cure her. In one part of that opinion I was mistaken: for when, at my next visit, I brought the parts affected into view by the speculum for the purpose of cauterizing the ulcerated surface, which was very extensive, especially on the anterior portion of the cervix uteri, I saw lying within the margin of the os, a bright crimson or raspberry polypus the size of a pea, which I destroyed by caustic; the ulceration, treated by the ordinary means, was quite well at the end of three months; and its cure was attended by the complete re-establishment of the lady's health, and former good spirits.

Now this growth, so evident when the speculum was used, was not discoverable by the finger; and had it happened that the patient sought other advice before the second examination was made, she might have been told, and with perfect truth, that she had a polypus; and she would very naturally have concluded in her own mind, that I had been mistaken in the nature of her case.

Why, it may be asked, do these small polypi, accompanied by ulceration, thus elude detection by the finger? First, on account of their small size; secondly, because of their softness and extreme mobility; and thirdly, because, under the pecu-

liar circumstances, the labia of the os uteri are congested and enlarged; and, projecting more than natural, enclose between them, and, as it were, protect, these small polypoid excrescences, so that they cannot be felt by the finger; and, I should add, that if an examination be made by the plain tube speculum, they may still escape observation, especially if the cervix uteri be retroverted; for, in order to bring them fairly into view, it is often necessary to cause separation of the lips of the os, which the plain tube speculum will not do, but which is readily accomplished by the expanding speculum of Ricord.

These growths, which I have here called raspberry polypi, are found, possessing very similar characters (except as regards sensibility), in other situations; having in common,—their development in the entrances to cavities lined by mucous membrane, and surrounded by sphincters. Thus, they are found within the anus, at the entrance of the vagina, in the meatus urinarius; and also in the external meatus of the ear; and wherever existing, they are almost always accompanied by more or less of superficial ulceration of the mucous membrane of the part. Their structure appears to be the same in all these situations; but while those that form at the os uteri are quite insensible, in other situations their sensibility is generally very marked, and sometimes intense; but not always, for I have met with instances in which those vascular tumours have been completely devoid of sensibility, even when growing from the meatus urinarius, in which situation they are, *in general*, most exquisitely painful.

These small polypi and polypoid excrescences of the os uteri are of more importance than their size would at all lead us to anticipate: at whatever period of life they may be found, or however small they may be, they are accompanied by increased vascular action in the cervix uteri, producing often ulceration, and of course debilitating discharges, and a train of symptoms, which, although perhaps so slight in their character, individually, as almost to escape observation, yet have the

effect of seriously deranging many of the most important functions of the economy, and of inducing a very miserable state of health ; thus, in Case III., two little polypi, not larger than grape-stones, and accompanied by slight ulceration, had nearly brought the patient to the verge of the grave ; and their removal was quickly followed by restoration to perfect health.

These small polypi are seldom solitary : where you find one, there is very often another, either discoverable at the moment, or soon to appear ; they, like other forms of polypus, are frequently conjoined with other diseases, especially with fibrous tumour. I have in my museum several specimens of these combinations : in one instance, there are two of these small growths in the cervix, and two bony tumours in the uterus ; in another, there is a small polypus growing from within the os uteri, a larger one within the cavity of the organ, and a fibrous tumour in its substance.

In Case v. there appeared first a polypoid excrescence, and then a little true polypus, and these, in conjunction with encysted tumours of the ovary, and also in both labia externa. When they occur in women of advanced years, say from sixty to seventy, *they are often the precursors of something worse*, especially when of the vesicular kind. You may readily remove them, of course, but too often you will be disappointed in the result ; the discharges return ; you examine,—there is no re-appearance of the polypi ; but the discharges go on, after a time pain sets in, and ultimately the patient dies, after a long series of sufferings ; and if the uterus is examined, it is found enlarged, but not much, with its internal surface eroded with ulcerations, and covered with fungoid excrescences. We should, therefore, be cautious in promising too much, when called on to treat these small growths, for, although, in most cases, our success is complete, we are liable to disappointments.

I have now to notice another source of error, of an opposite kind to that just discussed, which I have frequently met

with in practice; I mean, a tumefied and somewhat elongated condition of the extremity and inner surface of the anterior lip of the os uteri, produced by the increased vascular action accompanying a long-standing ulceration of this part, which gives it so much the character of a distinct tumour proceeding from the os, as sometimes to lead to its being mistaken for a polypus. The peculiar form of the os uteri, in these cases, tends rather to confirm this error, its lateral commissures being drawn upwards and forwards, while the tumefied anterior lip stretches downwards and backwards, producing considerable *apparent* retroversion of the cervix. The orifice assumes nearly the form of a crescent, and *seems* to encircle the tumour, which, however, it does not, but the posterior lip feels thinned, and partially drawn *over* the anterior, somewhat like a hood. The diagnosis is really not difficult, once attention is called to the matter, and we readily ascertain, by obvious points of distinction, that the tumour thus felt is the anterior lip itself in an altered condition, and not a polypus attached to it, or lying within the circle of the os. For the present I will only add, that this tumefaction yields, but *very slowly*, to scarifications and cauterization conjoined to constitutional treatment; and a portion of its surface will remain prominent and unhealed long after the rest of the ulceration has cicatrized. In proportion, however, as this hypertrophy of the anterior lip diminishes and fines down, the apparent retroversion of the cervix gradually lessens, and at length disappears.

The following case affords a good illustration of this form of disease, which also existed in cases V., VI., and VII., though not to an equal degree.

CASE VIII.—*Extensive ulceration of the cervix uteri, with prominent hypertrophy of the anterior lip of the os, mistaken for a polypus; cured by scarification and cauterization, &c.*

A lady applied to me for advice, in consequence of having been told that she had a tumour protruding through the mouth of the womb, which would require removal by a ligature.

She complained of much pain in different directions through the pelvis, loins, and down the thighs, with bearing down, and what she called "a bursting feel," together with purulent discharge ; her general health, strength, and spirits were very much impaired. On examination with the finger, I readily discovered the tumour alluded to, but it was evidently not a polypus, but a portion of the anterior lip of the os uteri, projecting in the way just described, and covered with granulations, so much developed, that I could distinguish them quite plainly by the touch.

When the speculum was used, this became still more evident, and the enlarged anterior lip presented, in colour and granular surface, an appearance exactly resembling that of the raspberry polypi already mentioned ; but this portion of the cervix was so much enlarged and retroverted, that a full view of the os uteri could not be obtained until after the lapse of more than a month ; by which time, a great reduction in size was effected in the hypertrophied part by repeated scarifications, cauterization with the acid nitrate of mercury, together with rest, aperients, the internal administration of hydriodate of potash, and the use of the warm bath. At the end of three months I had the satisfaction of finding the tumour removed, and the ulceration healed.

In such cases as these, then (and they are common enough), a growth of this kind may be mistaken for a polypus, when no such thing exists ; while, on the other hand, we have just seen that where small polypi really do exist, they may readily be overlooked, except great care be exercised in making our examination.

The next two cases, among others, shew that we are not to take for granted what has been asserted, that the coming away of the canula, and the separation of the polypus, happen simultaneously ; the latter frequently takes place while the canula remains adherent ; and, on the other hand, the instrument often comes away, leaving the polypus behind, although detached :

and should the latter be a large one, which cannot readily escape from the vagina, it ought to be extracted with as little delay as possible, in order to avoid its putrefying in the vagina.

CASE IX.—*Polypus of middle size, accompanied by ulceration, pronounced to be cancer; ligature within the os uteri; cure.*

The patient in this case was about fifty years of age, and unmarried; I visited her in consequence of symptoms of uterine disturbance, which had been pronounced to proceed from cancer, by more than one authority, and so convinced was the patient, and her friends, of the truth of this opinion, and of the incurable nature of the disease, that my visit was requested merely in compliance with the earnest wish of a person much interested about her, who hoped that I might be able to suggest something to alleviate her sufferings.

It appeared that about two years and a half before my seeing her, she had been much agitated and terrified, immediately after which she was seized with a severe pain across the loins, accompanied by a profuse sanguineous discharge, which lasted for several days. The pain in the loins and across the lower part of the abdomen continued almost constantly from that time; for the year previous to my seeing her, it had increased in severity, and she was never free from bloody and other discharges. She described the pain as darting from the loins through the umbilical region, and down along the thighs. From this detail of symptoms, before I examined her, I thought it highly probable that the opinion given of her case was but too correct; however, it was not so. On examination, I at once detected a polypus, about the size of a red plum, and of firm structure, partially protruding through the os uteri, which was dilated and relaxed, so that the finger passed freely round between the polypus and it, and I could feel the attachment of the pedicle within the dilated cervix.

On introducing a plain tube speculum, the polypus was readily seen, resembling in appearance a ripe strawberry, only

not of so vivid a red colour as that fruit generally is, but, like it, speckled over its surface with small red points.

On Monday, September 22, I passed a ligature round its pedicle, about half an inch, or a little more, within the os uteri, on tightening which the patient complained of a stinging pain in the back, which, however, subsided under the influence of an opiate.

The same effect, and the same result, occurred each time I tightened the ligature, which, however, only required to be done three times, as on Thursday, 25th, the polypus came away during a fit of coughing, *the ligature and canula remaining behind*; nor could the canula be withdrawn, until I untied the ends of the ligature, and completely freed the noose by pushing up the ligature into the canula. The polypus was of the white fibrous kind, much softened down, and now quite white.

After the removal of the canula, and having washed out the vagina, I introduced a plain tube speculum, so as to see the os uteri, around which, especially anteriorly, was an ulcer of about the area of a sixpence. Wishing to try whether this would heal of itself, I only ordered some mild chalybeate tonic; and on seeing her on the 15th October, her health and strength were greatly improved, but the ulcer shewing no disposition to heal, I cauterized it with nitrate of silver, after a few applications of which it healed, and she was soon quite well.

CASE X.—*Polypus with occasional prolapse; ulceration of the os uteri mistaken for cancer; removal by ligature; recovery.*

On the 20th October, 1845, I was requested by Mr Wilmot to see a case which he had been called on to visit as one of cancer uteri, but in which he had discovered a polypus projecting from the os uteri, which he found in a state of partial prolapse, and had reduced it.

When I saw the patient, the parts were all in their proper place. and at the top of the vagina the polypus was readily

felt projecting from the os uteri ; it seemed about the size and shape of a small Mogul plum, was of fibrous firmness, and I could trace its pedicle to its attachment within the os uteri, to the right side of the cervix. She had also vascular tumours within the margin of the anus ; had had copious bloody and other discharges from the vagina ; and suffered very severe pain in different directions through the pelvis. Under these conjoined influences, she was reduced to a very wretched state.

Wishing to examine what she called her bleeding piles, I asked her to force down, when I perceived that the pressure was exerted fully as much on the vagina as on the rectum ; so I encouraged her to repeat the effort, in the hope that she would force down the uterus, and so allow me to see the polypus *in situ* ; this she soon accomplished, and the polypus was protruded partially, together with a portion of the os and cervix uteri ; it was of the size already mentioned, smooth, firm, and of a brownish red colour.

October 21. I went prepared with a canula and ligature, and got her to repeat the bearing down efforts, until the parts were protruded to the same degree as the day before ; I caught the polypus with the points of my fingers (having previously passed my hand through the loop of the ligature), and drew it and the uterus down completely, which caused the patient hardly any inconvenience.

I now found that the polypus was not of the long shape I had, from touch, supposed it to be, but more flattened or turnip-shaped, and about an inch and a half in diameter ; it was only partially protruded from the os uteri, which was much swollen and dilated, and its margins superficially ulcerated. I slipped up the noose of the ligature over my fingers, settled it round the pedicle of the polypus, drew the ends of it tight into the canula, and secured it firmly ; having done so, I pushed up the uterus to its proper place in the pelvis, and with it the canula

I tightened the ligature daily, without causing any pain, until the 25th, when the polypus dropped out of the vagina, *but the canula remained firmly adherent*. I then loosened the ligature and withdrew both. The polypus, when removed, was quite soft, white, and flat, resembling in size and form a flattened fig.

It will be observed that the same thing happened in Case ix., and the explanation I believe to be, that the portion of pedicle above the ligature sometimes maintains its vitality longer than that below it, and so does not yield so soon; in which case the ligature and canula ought to be withdrawn, as their presence can effect no further benefit, but may do harm.

October 30. The os uteri is quickly returning to its natural form and condition.

In the two preceding cases, it will be remembered that cancer uteri had been declared to exist, which error was induced, I think, by two causes: first, by the existence of the ulceration; and secondly, by the peculiar position of the polypus, which was only partially protruded through the os uteri, which it, of course, kept distended and irritated. From the combination of these two conditions, arose pain of an amount and character well calculated to lead to an erroneous conclusion; especially considering the generally adopted opinion that polypus is a painless disease.

Every one must have observed the fact mentioned in Cases ix. and x., that, the polypus having separated and escaped, we find the canula still holding on, when it can no longer do any service, but may cause not merely the inconvenience inseparable from its presence, but fretting and irritation of the parts.

In such cases, where there is distinct evidence of the polypus having separated, the ligature should be loosened, and both it and the canula withdrawn, and the polypus also, if it has not already come away of itself.

Again, it will happen, that although the ligature is quite

drawn home to the top of the canula, neither it nor the tumour (although, perhaps, only of moderate bulk) can be brought away. In this case, our object will sometimes be accomplished by giving the canula one or two turns or twists on itself; and if this does not succeed, it is better to pass a curved scissors and divide the adherent substance just above the noose of the ligature.

CASE XI.—*Large fibrous polypus, mistaken for scirrhus; removal by ligature; recovery.*

The patient in this case was an English lady, aged fifty-three, and mother of several children. She had been, for fully four years, labouring under a variety of symptoms, apparently originating in the uterus. She had not suffered any pain, and not much bearing down; but she was hardly ever free from vaginal discharge of some kind or other; at one time serous, then mucous, or muco-purulent, then reddish, and occasionally there was decided and even profuse hæmorrhage; and often this discharge had a highly offensive odour. Still her general health had borne up wonderfully until latterly, when she began to exhibit symptoms of a total break-up in her system; her appetite was failing, she had become blanched and waxy looking, her face was slightly œdematous, her flesh was wasting, and the sanguineous discharge was constant.

She had been for a long time under medical treatment, and had taken a variety of tonics and astringents, but had never been examined until about a year before my seeing her, when a surgeon of eminence had been consulted, who, after examining her, pronounced her case to be carcinoma uteri, and advised, among other things, that she should be amused and soothed by travelling; which plan was, accordingly, adopted, and persevered in until a short time before my seeing her, up to which period she never had had a moment's pain, but from the failure of her strength, she was no longer able to go about.

On hearing this account, I at once said, that although I could not tell what her ailment was, until I had examined

her, I would undertake to say what it was not, and that, assuredly, it was not cancer; on hearing which, her husband, a fine veteran officer, burst into tears.

On examination, I at once encountered a polypus of large size, filling up the upper two-thirds of the vagina; and except this, there was no evidence of any other kind of disease. The next day, assisted by Dr. Johnson, I passed a ligature, with some difficulty, around its pedicle; and having tightened it every morning, the canula came away on the fifth day, leaving the polypus loose in the vagina, from which I had considerable difficulty in extracting it, owing to its size: after which, she went on uninterruptedly convalescing, and at the end of ten days was able to be in her drawing-room.

The polypus was of the white fibrous kind, of the size and very nearly of the form of a human kidney, the pedicle, from the situation of its attachment, representing the pelvis of the ureter.

In this case, the benefit from the application of the ligature was immediate, indeed, I might say *instantaneous*, for from that moment the sanguineous discharge disappeared, and the serous discharge was greatly diminished; and within two days, she told me that she felt an indescribable change in her feelings, producing a conviction that she was going to get well, which anticipation was realized most completely. In a month afterwards she had a slight menstruation for two days, which was repeated once more.

I think it highly probable that the error in diagnosis in this case had arisen from the examination having been made, just at the time when the polypus was descending, or had descended into the os uteri, thereby giving to the lower part of the cervix an unnatural form and consistence, whereby it more or less resembled a scirrhus tumour of the part, as occurred in the following very interesting case.

CASE XII.—*Fibrous tumour of the uterus, gradually becoming a polypus; removal by ligature; recovery.*

I saw this lady in January, 1845; she was about fifty years of age, unmarried, and affected with profuse menstruation, and irregular hæmorrhagic and other discharges. On examination through the parietes of the abdomen, which were very thin, a tumour could be felt in the region of the uterus, and on examination by the vagina, the posterior wall of the uterus was found bulged out by a tumour, having all the characters of a fibrous mass embedded in its substance; the uterus lay very high, its neck was small, and the os uteri narrow and quite closed. She was treated with preparations of iodine and iron, and got better, and after about a month, my attendance was discontinued.

I heard nothing of this patient for more than a year, when, on the 18th February, 1846, I was urgently summoned to see her, in consequence of an attack of very profuse uterine hæmorrhage, which had greatly exhausted her. I was now surprised to find the uterus very low in the pelvis, the cervix enlarged and bulging, as we often find it when abortion is impending, and the os uteri with its lips thinned, and so relaxed that I passed my finger with great ease into it; and about half an inch within it, I felt, distinctly, a smooth, firm, round tumour, all round which I could pass the point of my finger, without difficulty or obstruction in any part. I felt no doubt of this being a polypus, about to descend, and explained to the lady that her disease was now assuming a condition in which it would soon admit of being removed by a painless operation.

Rest and tonics were ordered, and I saw her again on the 21st, when the extremity of the polypus had descended as low as the margin of the os uteri; and on the 25th it had passed out, so as to project about half an inch into the vagina, with the os uteri encircling it so tightly, and its edges lying so close to the tumour, or indeed pressing into it, that the whole appeared one continuous mass. Had I not been, from my

previous knowledge of the circumstances of the case, aware of how matters really were, I doubt much that I could possibly have distinguished the true relation of the parts to each other; and I think it highly probable that we have here an explanation of the error which has so frequently occurred, of mistaking polypus, particularly when accompanied by much pain, for scirrhus tumour; for if the case should happen to be examined just when in the state here described, it would present much more the characters of a solid enlargement of the uterus itself, than of a polypus attached to, or growing from it.—See remarks on Case x.

The polypus remained nearly in the same situation for more than five weeks, with profuse serous discharge, which debilitated her very much; but on the 2nd and 3rd of April she had slight sensations of pain for the first time, and when I visited her on the 4th, I found that the polypus had completely cleared the os uteri, and had descended into the vagina, which it filled.

On the 7th, by means of the double moveable canula, I passed a ligature round its pedicle, the tightening of which, from day to day, gave no pain; and on the 11th, I found the canula loose, but holding the polypus by the noose of the ligature, by which, after one or two attempts, made slowly and cautiously, I extracted it from the vagina, though not without a good deal of pain to the patient, owing to the narrowness of the vaginal orifice.

The polypus, when extracted, was the size of a large turkey egg, but had certainly lost one-third of its bulk since the application of the ligature; it was also of a dead white appearance, instead of the warm flesh-colour which it had before its pedicle was tied: its structure was that of the white fibrous tumour of the uterus.

I may observe here, that we can form no opinion whatever of what a polypus has been, when growing from the uterus, by the appearance it presents after its removal by ligature; its

colour is totally changed, and its size, consistence, and figure are all altered in a greater or lesser degree, according to its peculiar character.

In both the preceding cases, the extraction of the polypus from the vagina was a matter of difficulty, and caused no small pain; but under such circumstances, we should, if possible, get these tumours away, rather than run the risk of allowing them to "remain some days in the vagina," as recommended by Denman, in order that their extraction may be rendered more easy, "their bulk hourly lessening by decay." In one instance in which I saw this plan adopted, the result was sloughing and perforation of the recto-vaginal septum.

The case just related may be regarded as a distinct example of what I consider a very common occurrence, namely, the conversion of a fibrous tumour of the uterus into a pediculated polypus. That the two forms of disease are constantly found together every pathological collection abundantly shews; and that the structure of the great majority of polypi is identical with that of the fibrous tumour(*a*), or fleshy tubercle of the uterus, "so that," to use the words of Bailie, "a person looking on a section of the one and the other, out of the body, could not distinguish between them," is, I believe, generally admitted; but it appears to me equally proved and certain that a fibrous tumour, first developed in the substance of the uterine wall, does, not unfrequently, slowly escape thence, protruding either outwardly towards the peritonæum, or inwardly towards the mucous membrane lining the cavity of the organ; a pedicle being thus gradually formed, and the tumour assuming the character of a common polypus(*b*). In one preparation in

(*a*) "They are the same disease, differing only in the seat and mode of their attachment, and consequently in the symptoms which they produce."—GOOCH.

(*b*) Dupuytren, speaking of fibrous tumours of the uterus, says: "Ces tumeurs sont souvent situées à la surface interne de la matrice, et sont, ou simplement protuberantes dans la cavité utérine, ou tout à fait pédiculées, ce qui est le plus ordinaire. Celles ci constituent les polypes fibro-celluleux," &c.—*Leçons Orales*.

my museum there are, on the external surface of the uterus, no less than six of these tumours, of small size, exhibiting every stage of this progress. In another instance, so large a polypus was thus formed, from the back of the uterus, that it completely filled the cavity of the pelvis, and fatally obstructed delivery. In a third, there is a fibrous tumour about the size of a walnut, which was found projecting into and distending the cavity of the uterus, having almost completely liberated itself from its connection with the substance of the organ, when the patient died of another disease.

This fact, then, should be borne in mind when we are called on to give an opinion, as to the results to be expected in a case of fibrous tumour in the uterus. The possibility of such an occurrence should be suggested, lest, a polypus afterwards appearing, we should be supposed to have mistaken the nature of the case. It must also be remembered that, in any such instance, there may be more than one fibrous tumour in the uterus, and then in all probability the ultimate success of our operation will be frustrated, as the patient may remain affected with the same symptoms as before the removal of the polypus. Both these points are illustrated in the following case.

CASE XIII.—Descent of a fibrous tumour from the uterus, forming a polypus; removal by ligature; complete recovery; other fibrous tumours afterwards developed, causing return of the symptoms.

In the year 1837 I accompanied Dr. Thornhill to the County Kilkenny, to see a lady who was very ill. She had been previously visited and examined by Dr. Thornhill, who, about the close of 1835, had discovered a tumour in the uterus, and suggested the probability that a polypus might eventually appear. This turned out as he predicted, a polypus having been detected in the vagina in the month of January, 1837. At the time of my seeing her, her state was most deplorable; she had immense losses of blood, and copious leucorrhœal discharge, which, latterly, had

a most offensive odour. She appeared to have lost almost every drop of blood in her body; her pulse was scarcely perceptible, and her stomach so irritable that, although suffering from an insatiable thirst, she dreaded to take the smallest quantity of drink; even turning in her bed brought on vomiting; she could take no food; she was completely blanched; complained of ringing noise in her ears; her sleep was quite gone; she had no pain; nor was there any enlargement perceptible about the uterus.

I found in the vagina a firm polypus, about the size of a hen's egg, with a very short pedicle passing through the os uteri. By means of the double moveable canula I applied a ligature, the tightening of which gave no pain. Being then under the necessity of returning to town, I left the case in Dr. Thornhill's hands; he tightened the ligature, every morning and evening, until the fourth day, when the canula came away, and the polypus was removed with the finger; it was quite smooth on the surface, very firm, and presented internally the structure of the white fibrous tumour of the uterus.

The success of the operation was complete, for from the moment the ligature was applied, the morbid discharge ceased almost entirely, and the lady's condition rapidly improved, so that within a couple of months she was able to ride on horseback, and felt herself restored to perfect health and spirits.

But the polypus had left some of its kindred behind, for after three or four years of freedom from any uterine disturbance, the menorrhagic discharges were again experienced, and when she came to town in 1844 to consult me, I had no difficulty in recognizing more than one fibrous tumour of considerable size in the walls of the uterus, in consequence of which she has since, as I am informed, suffered most alarming losses of blood.

I believe this descent of a fibrous tumour to be the explanation of some of these cases of polypi appearing, for the first time, immediately after delivery, of which I shall relate one

or two examples before I conclude. See Cases XVIII. and XIX.

A woman with a fibrous tumour in the substance of the uterus, lying, perhaps, close to the mucous membrane, becomes pregnant, and, in consequence of the greater flow of blood which takes place into the uterine vessels, the tumour increases in volume, and protrudes more and more towards the cavity of the organ; labour comes on, and the uterine contractions, having first expelled the child and its appendages, continue to exert more or less forcibly the same influence on the fibrous tumour, until at length it is forced down into the vagina in the form of an ordinary polypus, sometimes, unfortunately, carrying with it the fundus uteri inverted.

We have already seen that the smallest polypus springing from within the os uteri, is almost invariably productive of leucorrhœal and bloody discharges; when, however, the polypus springs from the outer surface of the lip of the uterus, we often find the patient almost, if not altogether, free from these discharges, but she has a certain degree of prolapse, or, at least, the sensation of it, as we find happens also in simple congestion or ulceration of the cervix. Such was the state of the patient in Case II., who had no hæmorrhage; and in the following instance there was no discharge of any kind.

CASE XIV.—*Polypus growing from the lip of the os uteri, unaccompanied by discharges; removal by ligature; recovery.*

I saw this patient with Doctor M'Cready on the 13th of May. She was about fifty years of age, mother of three children; general health good; had not complained of any uterine disturbance until last Christmas, since which time she has had prolapsus uteri, with sensations of dragging at the loins, and latterly, a small tumour protruded from the orifice of the vagina. Menstruation appeared to have ceased a year before I saw her, and she had no irregular hæmorrhage, nor other discharges. On examination I found lying just between the labia

pudendi, a tumour about the size of a ripe cherry, of a florid red colour, covered with mucous membrane, perfectly smooth and quite insensible; its anterior surface presented, imbedded in it, three semi-transparent, vesicular bodies, about one-fourth of an inch in diameter, and slightly raised above the surface. On passing the point of the finger underneath this little polypus, its pedicle, about as thick as a goose-quill, was readily traced to the anterior lip of the os uteri, from the extremity and outer or vaginal side of which it sprung, just over the labial commissure of the left side, leaving the os uteri, which felt perfectly natural, quite free. On her bearing down a few times, the uterus came so low that the insertion of the pedicle of the polypus into the anterior lip was distinctly seen. Dr. M'Cready then took hold of the body of the polypus to prevent its return, while I passed a piece of twisted silk thread, without any canula, round its pedicle, close to its uterine extremity, and having tied it tightly with a double knot, it was left so: immediately on being tied, the polypus shrank and completely changed colour, becoming of a pale or light ashen hue, instead of its previous florid red. While the polypus was being held, the pressure burst one of the vesicular bodies on its surface, which discharged a gelatinous fluid of a yellowish colour.

The day but one after, on visiting her, she told me the polypus had dropped off an hour or two before, and shewed it to me in a glass of water on her dressing-table, with the silk thread still attached to it. It was now quite flat, not more than one-eighth of an inch in thickness, of a dead white colour, and in no respect like its former self. On examination, all that could be detected was a small portion of the pedicle adhering to the outside of the lip of the uterus.

I visited this lady on the 15th June, and was informed by her, that from the moment the ligature was placed on the polypus, the sensation of prolapse and bearing down ceased completely, and has never since returned. On examining per

vaginam, I found the uterus in its proper place, perfectly healthy, and the anterior lip without a trace of the pedicle remaining.

Should pregnancy occur, under such circumstances, the polypus, if of only moderate size, may in no way interfere with the healthy progress of gestation and delivery; but it will be observed to increase in size, as the uterus becomes enlarged, and to diminish again, as the uterus is reduced in volume after delivery, the circumstances attending which sometimes cause the detachment of the polypus, or its destruction by disorganization, as happened in the following case.

CASE XV.—*Polypus from the lip of the os uteri; destroyed by the pressure of the child during labour.*

In the year 1832 I was in attendance on a lady in labour of her ninth child, and on examining per vaginam I found a small firm polypus, about the size of a cherry, growing by a pedicle, from the anterior lip of the os uteri. The labour was severe, owing to the great size of the child, which, in its passage through the os uteri, must have pressed and distended the parts with great force. I informed the lady's mother of the existence of the polypus, stating that it would probably grow, and produce annoyance, in which case it would be necessary to remove it; she seemed surprised, and assured me that her daughter had not had any discharge, or other symptoms indicative of anything being wrong.

Some time afterwards, I was called to attend this lady in a miscarriage, when I was not a little surprised to find not a trace of the polypus remaining. I presume there can be little doubt that it was either broken off, during the difficult expulsion of the large head, in the previous labour, or that its organization was so injured by the pressure it sustained, that it dropped off.

Dr. Ramsbotham relates a case(a) in which a polypus remained attached to the lip of the os uteri during two succes-

(a) Practical Observations on Midwifery. Part II., p. 473.

sive pregnancies, without in any way interfering with the functions of that organ; it neither impeded delivery, nor caused hæmorrhage at any time: it was observed to increase in size as pregnancy advanced, and after delivery "as the bulk of the uterus became contracted, the polypous tumour proportionally decreased, and became more firm to the feel. She nursed her child, and had plenty of milk."

In another case, a polypus of this kind, as large as the head of a five months' fœtus, was discovered by Dr. Merriman, at the end of the eighth month of pregnancy, and removed by ligature, without any disturbance of gestation; and a month afterwards the patient had a good labour, and recovered well(*a*).

CASE XVI.—*Fibrous polypus occasionally descending beyond the external parts; excision; shrinking in of pedicle; recovery.*

In 1836 I saw, in consultation with Mr. Porter, a patient with a polypus in the vagina, from which she had been suffering for a considerable time, until her system was almost completely drained of blood. Her whole surface was exsanguined, she had anasarca of the face and lower extremities; and the vital powers were sunk to the lowest degree.

The polypus, which was as large as a turkey's egg, smooth, and very firm, lay so high in the vagina, that we could not feel its pedicle, which we were desirous of doing, as we proposed dividing it by the knife: the patient assured us that she had frequently felt the tumour, as it had descended quite through the external parts on several occasions, when she had, from any cause, tenesmus, which brought on bearing down, and the protrusion of the polypus; but no voluntary effort of her's would cause it to protrude. Hoping that the action of a purgative, which she required at the time, might produce the same result, she was ordered one, which had the desired effect, when we received notice, and found the polypus, which

(*a*) Synopsis of Difficult Parturition, 4th edit., p. 234.

was of a dull white colour, protruded from the vagina: it was immediately seized by the hand, and the pedicle, which was about three-eighths of an inch thick, was divided by Mr. Porter with one stroke of a curved bistoury, without the loss of a single drop of red blood.

When the pedicle was divided, about an inch of it was left attached to the polypus; but in a few minutes, to our surprise, this totally disappeared, having completely shrunk into the tumour, which, on being divided, presented all the characters of the firm white fibrous tumour of the uterus.

This shrinking of the pedicle of a polypus of the fibrous kind, deserves attention, as it may be the cause of the hæmorrhage which sometimes follows excision, especially of large polypi, even where the precaution has been taken of firmly tying the pedicle before dividing it. The pedicle, thus shrinking in, slips away from the ligature, which virtually becomes loose, and of course ceases to exert any pressure on the blood-vessels, which then pour out their blood, just in the same way as not unfrequently happens with the umbilical cord of the new-born infant.

Two cases in which this happened have come under my notice, in one of which the patient died within a few hours after the division of the pedicle; although, from the skill and experience of the operator, I feel persuaded that every requisite precaution was taken. In the other case I assisted at the operation, which was performed by Mr. Cusack in Steevens's Hospital, in October, 1836. The particulars were the following :

CASE XVII.—Very large polypus, growing from the lip of the uterus, and appearing externally; ligature of its pedicle previous to division by the knife; subsequent hæmorrhage; recovery.

In this case the patient was sixty years of age, and had been labouring under the disease for three years; the polypus, which was very large, measuring fifteen and one-half inches in circumference, grew from the anterior lip of the os uteri,

and protruded beyond the external parts fully seven or eight inches; its pedicle was about three inches long, and one inch and a quarter thick; and behind, and to the right side of it, the os uteri could be distinctly felt, though very much changed in its form and position. A skein of silk was first passed round the pedicle, and very firmly tied; the pedicle was then divided with a knife, and all seemed well, but in the course of the day, hæmorrhage occurred to a considerable amount, although the ligature had been drawn as tightly round the pedicle as could be effected by the united strength of the two gentlemen who applied it. It was remarked that when the ligature was tightened, the temperature of the tumour immediately fell, and its colour became much paler. The orifices of several vessels were visible on the cut surface of the pedicle and in the polypus, which was of the fibrous kind; and in this instance also the portion of pedicle, about an inch in length, left attached to the polypus, quickly shrank in, as in Case *xvi.*, and totally disappeared.

The patient recovered favourably, notwithstanding the occurrence of a profuse diarrhœa, which came on a few days after the operation; an accident which I have several times observed under similar circumstances.

The occasional sudden descent of the tumour beyond the external parts, and its retraction, as noticed in Cases *x.* and *xvi.*, may occasionally assist in distinguishing polypus from inverted uterus in the chronic state, as was exemplified in the case which I shall next relate, the details of which are of more than ordinary interest.

CASE XVIII.—Fibrous polypus dating from the time of labour; occasional prolapse of the tumour; removal by ligature; recovery.

Bridget Hennesy was delivered on the 3rd October, 1835, under the care of a midwife, and much difficulty was experienced in getting away the after-birth, which was removed with great force, at which time, profuse hæmorrhage occurred,

and, if the woman's own account can be relied on, it would seem that portions of the placenta and cord were voided at different times, during many months subsequently; one thing, however, is certain, that from the time of her delivery up to the time of my seeing her, a period of very nearly two years, she continued to have bloody and other irregular vaginal discharges, almost incessantly, which were increased by the slightest exertion.

About the end of May, 1836, one night, being at stool, she felt what she conceived to be the womb forced down into the vagina; it soon receded, however, on her lying down in bed. This descent of a tumour was repeated at intervals of about two months, but she was always able to relieve herself by pressing it up with her hand.

In December, 1836, something solid escaped, after which she felt relieved; her thirst, which had been intense, now abated, and her appetite improved, and she felt better, until the 15th of August, 1837, when her child died in a miserable lodging off the Coombe; and from the effects of fright and anxiety, the woman was seized with flooding, to such an extent, that the blood streamed through the floor, into a room underneath, and greatly alarmed the persons living there, who immediately applied for assistance at the Coombe Hospital, into which she was carried almost moribund.

I saw this woman, at the request of Mr. Hugh Carmichael, in September, 1837, and found her in a most deplorable condition, completely blanched, the face and limbs œdematous, her strength entirely gone; she could not eat anything; even turning in her bed brought on vomiting; in short, her state appeared quite hopeless.

On examination per vaginam, I found a tumour filling that passage; it was firm, smooth, of the shape and about the size of a small goose egg. From the woman's account, it would appear that the tumour was sensible, for sometimes when it was pressed, she complained of pain; at other times this was doubt-

ful : the os uteri could not be felt, nor the angle of reflexion of the vagina. A gentleman, who had examined this woman about a month before, said he thought he had then felt the os uteri towards one side, and a little behind the upper part of the tumour. I could not satisfy myself at all on this point; but it appeared to me, that towards the upper part of the tumour, it gradually diminished in size, as if tapering. The same gentleman told me that he *was quite satisfied the tumour had increased in size* since the woman's admission into the hospital.

The diagnosis in this case was more than usually difficult, for several reasons: 1st. The os uteri could not be reached; and consequently the exact relation of the tumour with that part could not be determined. 2nd. The history of the case rendered it highly probable that it was an inverted uterus, for the symptoms had commenced immediately after labour, and the forcible extraction of the placenta by an ignorant midwife. 3rd. The woman's declaration that the tumour sometimes gave her pain on being touched.

Under the influence of these considerations, the case had appeared to more than one to be inverted uterus.

On the other hand, that the tumour was a polypus I thought more probable, from the following considerations: 1st. Its very great smoothness of surface. 2nd. Its tapering towards the upper part. 3rd. Its size, which appeared to me greater than that of an inverted uterus of nearly two years' standing. 4th. The fact that the tumour had grown perceptibly larger within the last month. 5th. Its firmness was less than that of an inverted uterus. 6th. The occasional descent of the tumour beyond the external parts, and its retrocession, of which I have seen several instances in cases of polypus, but not in inverted uterus. 7th. I could neither touch the os uteri, nor find a cul de sac around the upper part of the tumour, although I could pass my finger to a distance greater than the length of even a totally inverted uterus. 8th.

Being in doubt as to the correctness of the woman's statements about the sensibility of the tumour, and wishing to see its appearance, I introduced a plain speculum, and readily brought it into view; when it presented a smooth surface, marked alternately with dusky red and bluish patches intermixed with others of a cream colour. And lastly, 9th. While I had the tumour thus under view, I passed a pin into its substance, to a depth of more than half an inch, without the woman's experiencing any sensation of pain whatever; indeed, she was totally unconscious of my having done so.

From all these considerations, I felt satisfied that the tumour was a polypus, and recommended the immediate application of the ligature, which, by desire of Mr. Carmichael, I at once undertook. The operation caused the woman no pain, and on the fifth day the instrument came away, bringing with it the tumour, which was now of a dead white colour; it was of the fibrous kind, and, when cut open, exhibited the orifices of several vessels.

Under the influence of good nutritious food and tonics, the woman rapidly recovered her health; although previously reduced to a state of such deplorable misery and seemingly hopeless exhaustion, as appeared to prohibit all expectation of saving her life, by an operation, or any other means.

CASE XIX.—*Very large polypus appearing for the first time immediately after delivery; removal by ligature; recovery; pregnancy, and safe delivery.*

In February, 1843, I met Dr. Bingham and Mr. Brabazon in consultation, a few miles beyond Downpatrick, on the case of a lady, whose state was one of much solicitude.

She had been delivered on the 24th of the preceding month, when she gave birth to a large child after an easy labour; immediately after which, a large firm tumour, of the size of a foetal head, was found presenting at the os uteri. After the lapse of about half an hour, the placenta, of large

size, was expelled without any undue hæmorrhage. The attachment of the tumour to the posterior surface of the cervix uteri, not by a pedicle, but as if growing from the substance of the uterus, and appearing to be about two inches in diameter, was clearly ascertained by Dr. Bingham and Mr. Brabazon. About a week after delivery, the vaginal discharge became very fœtid, the bulk of the tumour began to diminish, its consistence became softer, and from day to day it descended, until it filled the vagina. All this time, there was no hæmorrhage, and very little uneasiness or constitutional disturbance of any kind; but the vaginal discharges were offensive in the highest degree, and the tumour so much softened in several spots, that the finger could without difficulty be pressed deep into its substance.

Such was the account given me of this case, in the written statement sent to me previous to my seeing the lady, on the 10th February, when, on examination, I found the condition of the tumour, and of the patient, precisely as reported to me.

After carefully deliberating on all the circumstances of the case, it was resolved to use the ligature, which I accordingly did at once, but found considerable difficulty in its accomplishment, owing to the size of the tumour; indeed, so great was the obstacle opposed to bringing the canula round it, that while endeavouring to do so, to my consternation, one of them bent, and I had no second instrument. Fortunately, however, I was able to restore its shape, and succeeded in placing the ligature securely above the body of the tumour, in effecting which, fully eight inches of the ligature were expended, so that the part of the polypus round which it was applied must have been very nearly three inches in diameter; the tightening of the ligature caused no pain whatever; the vagina was washed out, a composing draught administered to calm nervous agitation, and I took my departure for Dublin, leaving the case under the care of the two gentlemen in attendance, who tightened the ligature every day.

On the 12th, the report sent me by Dr. Bingham was: "The case is going on most favourably, the lady not having suffered the slightest pain or constitutional disturbance, except inability to discharge the contents of the bladder, since the application of the ligature; the appetite and strength are improving, the skin cool, pulse under 90, vaginal discharges much less fetid; the extremity of the tumour is now in the os externum, and is of a perfectly pale appearance; very firm pressure on the abdomen does not occasion any uneasiness."

On the 16th Mr. Brabazon writes: "Our patient goes on most favourably, but the tumour is not yet away. We tighten the ligature daily, and find the measurement of the portion already drawn up to be nearly eight inches." So matters proceeded until the 19th, when in attempting to tighten the ligature, it broke; another was immediately applied, and tied securely, and all the portion below it removed with the knife, which step was deemed advisable, as the vagina was becoming irritable and excoriated. About an hour afterwards a smart dash of bleeding caused some alarm, but it was readily controlled, and did not return.

A considerable portion of the tumour still remained behind, but pieces of it were now brought away daily.

On the 24th I again saw this lady, in consultation with her usual medical attendants, and, on examination, finding a portion of the tumour still adhering to the uterus, I caught it with a forceps, and drew it away without difficulty: it was quite dead and decomposed, and its removal was not followed by the loss of a single drop of blood.

From this time, the lady's recovery was rapid and uninterrupted, under the care of her two medical friends, whose judicious treatment of this very critical case it would be impossible to over-estimate.

On the 26th of April, I was thus informed by Dr. Bingham: "Our patient is in better health than she has enjoyed for some years, and is getting into flesh."

Menstruation returned, and continued regular, until the month of August in last year, when she again proved pregnant, went on favourably until the seventh month, when she was safely delivered of a living child, and recovered well and rapidly, and her health is at present declared to be as good as it has been for many years.

It is remarkable that in this case no symptoms had appeared previous to, nor during the pregnancy in question, to indicate the existence of any disease in the uterus, in the substance of which, however, I think we can hardly doubt that a fibrous tumour was imbedded, which grew rapidly larger during gestation, and then underwent the process already described in the observations on Case XII.

It was most fortunate that the tumour had its attachment so low down in the uterus in this case; had it been attached high up, about the fundus of the organ, there would have been,—first, the risk that the placenta might have adhered to it, as I once saw happen, and of which cases are recorded by Bach(*a*) and Dr. Macfarlane(*b*); and, secondly, the great probability, amounting almost to certainty, that inversion of the uterus would have been produced, an accident which has thus occurred in many instances on record, and of which I have seen two cases, in one of which it happened in the unimpregnated state of the organ, in a woman of advanced years, and in the other, immediately after labour.

Of the thirty instances in which I have operated on this disease, the removal of the tumour was effected,—in three cases by excision, two by caustic, nine by torsion, one by ergot, and fifteen by ligature.

In two other cases the polypus was destroyed accidentally,—once during labour, and once by the action of the expanding speculum.

It will be observed that by far the largest number of ope-

(*a*) *Memoires de l'Acad. de Chirurgie.*

(*b*) *Glasgow Medical Journal*, vol. i., p. 416.

rations were performed by the ligature, which method I greatly prefer to excision, as being much safer.

With polypi of small size, torsion presents a means of removal at once convenient, effectual, and free from risk; but with those of large bulk and thick pedicle, it ought never be attempted.

CASE XX.—Large polypus removed by torsion; laceration of the substance of the uterus; dangerous hæmorrhage.

A practitioner of great experience has afforded me the particulars of the following case:—He was once called to see the wife of a soldier, who had been in strong labour for several hours, without any advance of what was supposed to be the head of the child. On examination, however, it was found that she was not with child, and that the tumour presenting in the vagina was a very large and very firm polypus, of which the uterus was endeavouring to get rid, by violent expulsive contractions. It was gradually brought lower down; the gentleman who was in attendance on the patient introduced his hand, and twisted the polypus several times round, by which it was soon detached from the uterus, carrying along with it a portion of the organ itself; a profuse hæmorrhage then commenced, and the woman's life was with difficulty preserved.

The instrument which I have always used for applying the ligature is the double moveable canula of Niessens, and I have never yet met with a case which was not manageable by its means.

The ligature which I prefer to all others, and always use, is silk salmon fishing-line, prepared by soaking it in linseed oil, in which state it combines the necessary qualities of great strength, perfect pliability and softness, and remaining unaffected by moisture.

The forceps alluded to in Case v., which I find very useful for twisting off small polypi, consists of a straight stem about eight inches long, set in a handle; at the extremity of the stem are two short spring-blades, with serrated tips, upon which

slides a brace moveable from the handle, by which they are easily pressed firmly together, and made to grasp very securely any object caught between them.

Of the thirty cases operated on, one only terminated fatally, which, considering the wretched condition in which many of the patients were at the time of the operation, and some of them for months or years before it, is an encouraging and satisfactory result; but it should not be forgotten that the cure of polypus, of long standing, and accompanied with large discharges, is, under certain circumstances, associated with a risk which claims careful consideration.

Experience has taught me, that if a woman has for many years laboured under polypus, with constant and large discharges, and if she be naturally of a full habit and inclined to good living, and especially if she be of such an age that, after the removal of the disease, menstruation is not likely to recur, there will be danger of determination to the head, as in other cases of suddenly suppressed discharges.

It will, therefore, be the duty of the medical attendant, to prescribe such a carefully regulated system of diet and medicine, as he will deem best suited to prevent the occurrence of plethora and cerebral congestion, which I have seen take place fatally, under such a combination of circumstances.

From the foregoing cases and remarks it may be collected—

That very small uterine polypi, or polypoid excrescences, are of frequent occurrence.

That they are often not discoverable by touch alone, and so escape notice.—See Cases III., IV., V., VI., VII.

That they may even elude detection with the speculum, especially if the instrument used is not capable of separating the lips of the os uteri.

That they are a common cause of ulceration and menorrhagia, one or both; the cure of which requires, as a preliminary step, the removal of the polypus.—See Cases III., IV.

That while thus, on the one hand, a small polypus may escape detection, there is, on the other hand, a peculiar condition of the anterior lip of the os uteri liable to be mistaken for a polypus, and requiring a long time for its removal.—See Cases V., VI., VIII.

That the very small polypus of the os uteri is seldom solitary, and, in common with polypi of other kinds, is very often combined with other diseases of the uterus, especially with fibrous tumour.

That these small polypi of the os uteri, when occurring in women of advanced age, especially if they are of the vesicular kind, are often the precursors of a malignant form of uterine disease.

That polypus being very frequently accompanied by ulceration of the os and cervix uteri, and its concomitant pain and structural alteration, the symptoms are occasionally mistaken for those of cancer; which error is most likely to be committed if an examination should happen to be made just when a polypus of rather large size is passing through, but still engaged in, and distending the os uteri.—See Cases IX., X., XI., XII.

That in cases of larger sized polypi, ligature is the means most generally eligible, as being safer than excision, though not so expeditious; its application having, in general, the immediate effect of restraining the morbid discharges, and alleviating other symptoms, as in Cases XI., XIII., XIV., and ultimately curing the disease.

That polypi and polypoid excrescences of small size are best removed by torsion; or in some instances their destruction may be conveniently effected by caustic.—See Cases III., V., VI., VII.

That with large polypi torsion is unsafe and should not be attempted.—See Case XX.

That even with a polypus of small bulk, and slender pedicle, excision is not free from the risk of troublesome hæmor-

rhage, see Case II., while with those of large size, there is great reason to apprehend such an occurrence taking place to a very dangerous degree, even though the precaution may have been taken of firmly constricting the pedicle with a ligature previous to its division.—See Case XVII., and remarks on Case XVI.

That in ordinary cases of benign polypus, when no other disease exists in the uterus, the removal of the tumour by ligature, or other suitable means, is, in the vast majority of cases, completely successful, even under circumstances apparently quite hopeless.—See Cases XI., XIII., XVI., XVIII.

That in malignant growths, such as cauliflower excrescence, removal by ligature will sometimes effect a complete cure^(a); and that, where the success is not so decided, much good may be done by the operation.—See Case I.

That the situation from which a polypus springs makes a considerable difference in the symptoms which it produces: a polypus of the lip of the os uteri giving rise to fewer symptoms and much less discharge, as in Cases II., and XIV., than one of very inferior size growing from any part within the os uteri.—See Cases III., IV., V., VI., VII.

That a polypus of only moderate size growing from the lip of the os uteri is not likely to interfere, injuriously, with gestation or delivery, and its removal may be effected by, or as a consequence of, the pressure which it sustains during the expulsion of the child.—See Case XV., and remarks thereon.

That if a polypus, already detached, be too large to pass readily out of the vagina, it ought not to be allowed to remain there; but should be removed with the least possible delay, as its putrefaction may be attended with very unpleasant consequences.—See Cases XI., XII., and remarks thereon.

That a fibrous tumour, originally formed in the substance of the uterus, may thence descend, pass through the os uteri,

(a) See vol. XXVI. of the former series of this Journal, p. 402.

and form an ordinary pediculated polypus in the vagina.—See Cases XII., XIII., and observations thereon.

That in the unimpregnated state of the uterus, this change will be effected gradually, and in general very slowly, as in Cases XII. and XIII.; but that, should pregnancy occur, the descent and expulsion of the tumour may take place quickly under the expulsive action of labour, as in Case XIX., and probably in Case XVIII. also.

That a polypus, even of large size, may thus make its appearance for the first time, immediately after delivery, no suspicion having been previously entertained of its existence.

That the cure of long-standing polypus, with large discharges, is liable to be followed by a condition of the system requiring precautions against determination to the head.

ART. III.—*Observations on some Cases of permanently slow Pulse.* By WILLIAM STOKES, M.D., Physician to the Meath Hospital, &c.

IN the fourth volume of the Dublin Hospital Reports, Mr. Adams has recorded a case of permanently slow pulse, in which the patient suffered from repeated cerebral attacks of an apoplectic nature, though not followed by paralysis. The attention of subsequent writers on diseases of the heart, has not been sufficiently directed to this case, which is an example of a very curious and, as there is reason to believe, special combination of symptoms. The following cases will still further elucidate a subject on which there is but little information extant:—

CASE I.—*Repeated pseudo-apoplectic attacks, not followed by paralysis; slow pulse, with valvular murmur.*

Edmund Butler, aged sixty-eight, was admitted into the Meath Hospital, Feb. 9th, 1846. He stated that his health had been robust, until about three years ago, at which time he was suddenly seized with a fainting fit, in which he would have

fallen if he had not been supported. This occurred several times during the day, and always left him without any unpleasant effects. Since that time he has never been free from these attacks for any considerable length of time, and has had, at least, fifty such seizures. The fits are very uncertain as to the period of their invasion, and very irregular as to their intensity, some being much milder and of shorter duration than others. They are induced by any circumstance tending to impede or oppress the heart's action, such as sudden exertion, distended stomach, or constipated bowels. There is little warning given of the approaching attack. He feels, he says, a lump first in the stomach, which passes up through the right side of the neck into the head, where it seems to explode and pass away with a loud noise resembling thunder, by which he is stupified. This is often accompanied by a fluttering sensation about the heart. He never was convulsed or frothed at the mouth during the fit, but has occasionally injured his tongue. The duration of the attack is seldom more than four or five minutes, and sometimes less; but during that time he is perfectly insensible. He never suffered unpleasant effects after the fits, nor had anything like paralysis. His last fit occurred about one month before admission. He has never heard it remarked that there was anything peculiar about his heart or pulse. At first he found that spirits was the best restorative or prophylactic, but latterly he has not used them, being "afraid to die with spirits in his belly."

On admission, he was haggard and emaciated, but seemed the wreck of what was once a fine, robust man. He lay generally in a half drowsy state, but when spoken to was perfectly lively and intelligent.

What he sought admission into hospital for was an injury he had sustained, by a fall, on the left shoulder; this, however, was of no consequence, and he soon recovered under the use of an anodyne liniment.

He makes no complaint of his general health; his appetite is good, and he sleeps well; bowels regular, and, in fact, all the

functions are in good order. He has, however, some cough, attended with a slight mucous expectoration. His intellectual powers are perfect. He complains of a feeling of chilliness over the body, and is never warm except when close to the fire. This has long been the case; and he says that each day he gets a periodical chill, generally in the afternoon, which is followed by increased heat of the surface, but without sweating.

On percussion, the chest is universally resonant. The respiratory murmur loud, and combined, more especially posteriorly, with large mucous rales. The impulse of the heart is extremely slow, and of a dull, prolonged, heaving character, giving the idea of feeble as well as of slow action. The first sound is accompanied by a soft *bruit de soufflet*, which is prolonged until the commencement of the second sound, and is heard very distinctly up along the sternum, and even into the carotid arteries. The second sound is also imperfect, though very slightly so; the imperfection being much more evident after some beats than after others. Pulse twenty-eight in the minute, of a prolonged, sluggish character; the arteries pulsate visibly all over the body, but no *bruit* is audible in them. They appear to be in a state of permanent distension: the temporal arteries ramifying under the scalp, just as they are seen in a well-injected subject. All the other cavities and viscera appear to be in a perfectly healthy state. Urine, neither acid nor alkaline; of a light colour, clear; specific gravity 1010; and does not afford a precipitate with nitric acid. He was ordered four ounces of wine, and a liniment for the shoulder.

February 17th. The pulse has varied from twenty-eight to thirty in the minute. The cardiac murmurs continue unchanged; that with the first sound is plainly audible over the upper part of the thorax, but most evident along the course of the aorta.

21st. Pulse thirty. Cough quite gone. Has been complaining of a feeling of the "lump in the stomach" for several

days, and was once threatened with the approach of a fit during the night; it passed off, however, without becoming a true attack.

23rd. An œdematous swelling has appeared behind the left ear, extending up the side of the head, slightly tender on pressure; no redness; has had no shiverings; tongue clean; bowels free. Pulse up to 36.

March 3rd. On the 24th of February the œdema had left the left side, and made its appearance on the right, from which it was dispersed on the following day by the application of poultices. The pulse fell to the usual range.

His aspect and general health are greatly improved since his admission. He gets up every day, and is much stronger. The shoulder is almost quite well. The pulse has continued at about 28 or 30. He says he has had two threatenings of fits since his admission, both occurring in bed, *and both warded off by a peculiar manœuvre: as soon as he perceives symptoms of the approaching attack, he directly turns on his hands and knees, keeping his head low, and by this means, he says, he often averts what otherwise would end in an attack.*

4th. He has mentioned, for the first time to-day, that he is much troubled with irritability of the bladder, so that he is obliged to rise very often during the night to pass water. His urine was examined and found to be healthy. Specific gravity 1015. He has been subject to this for the last twelve months, and it probably depends on the disease of the prostate so common in old men.

We remarked to-day, that on listening attentively to the heart's action, we perceived that there were occasional semi-beats between the regular contractions, very weak, unattended with impulse, and corresponding to a similar state of the pulse, which thus probably amounts to about 36 in the minute, the evident beats being only 28, so that there must be about eight of these semi-beats in the minute;—but these signs are very indistinct.

14th. Health improving; has had no fit; no cough. Both morbid sounds are loudest over the sigmoid valves, and thence along the aorta. No semi-beats audible. Pulse 29; not quite so prolonged as before.

18th. He complains to-day of palpitation, and a feeling of uneasiness about the heart;—the impulse is increased and is found to consist of two distinct pulsations. The *bruit*, with the first sound, is somewhat louder than before. On listening attentively, there are heard occasional abortive attempts at a contraction, probably about four in the minute. They do not destroy the regular intervals between the stronger sounds, but are heard, as it were, filling up the interval. We could not recognise a corresponding state of the pulse, which counted 32 in the minute.

After this, little change was observed. His health continued improved; he had no fit, or threatening of one; and he appeared anxious to leave hospital, in order to go to work again. The pulse continued about the same standard, and regular; I believe it never exceeded 36 in the minute since his admission into hospital. The physical signs remained unchanged, as was observed the day before he left the hospital. An examination of the lungs revealed no morbid sign, the bronchial rales, heard at the time of admission, having quite disappeared.

He left the hospital in March, intending to go for some time into the country before he resumed work. He was advised to be careful not to over-exert himself; and never to allow himself to be bled when threatened with one of his fits.

Within the present month (June) this patient has been again admitted into hospital. The cardiac phenomena remain as before, but a new symptom has appeared, namely, a very remarkable pulsation in the right jugular vein. This is most evident when the patient is lying down. The number of the reflex pulsations is difficult to be established, but they are more than double the

number of the manifest ventricular contractions. About every third pulsation is very strong and sudden, and may be seen at a distance; the remaining waves are much less distinct, and some very minor ones can be also perceived. These may possibly correspond with those imperfect contractions which have been already noticed in the heart. The appearance of this patient's neck is very singular, and the pulsation of the veins is of a kind which we have never before witnessed.

He has had scarcely any of the cardiac attacks since he was discharged; he refers the premonitory sensations to the right supra-clavicular region, but states that he has often experienced them without any loss of consciousness following.

The next case exhibits a similar condition of the heart, but the pseudo-apoplectic attacks did not occur.

CASE II.—*Anemic condition; very slow pulse, with valvular murmur; death, apparently from syncope.*

A man, upwards of fifty years of age, was admitted, presenting much of the general characteristics of senile phthisis. His skin was of a pale yellowish tint, and his whole appearance indicated great debility. He complained of cough and dyspnoea, but did not refer any of his sufferings to the region of the heart. His pulse was generally 35 in the minute, though occasionally rising to 40. The action of the heart was regular, but feeble, and a valvular murmur with the first sound, precisely similar to that in mitral-valve regurgitation, was always audible. This became louder on ascending the sternum, and was most intense on the right side, at the anterior articulation of the second rib. We were inclined to consider this as an example of mitral valve disease, and supposed at first that the aortic murmur might result from anemia. The patient died without any struggle. On dissection, the mitral valve was found healthy. The aortic valve was thickened and narrowed, but not permanently patent. Water poured into the aorta did not pass into the ventricle; the heart was soft and flabby, and, though not an example of complete fatty degeneration, was covered by a

very thick layer of fat. The aorta presented several atheromatous patches.

In this case the second sound remained normal; there was no regurgitation into the ventricle. The valve was sufficiently diseased to cause a murmur with the first sound, but from its power of closing completely, the second remained unaltered.

The co-existence of aortic murmur with the symptoms of weakened heart in both these cases is important, for if it should appear that this combination is one of frequent occurrence, we shall have less difficulty in recognising an obscure disease of the heart. There is no reason to believe that there is any necessary connexion between the weakened, or fatty state of the heart, and disease of the aorta or its valves; but that the combination is frequent appears probable from the following considerations:

First,—In the two cases which have now been given, we see the combination of slow pulse with aortic murmurs.

Secondly,—In one of these, organic disease of the aorta was found on dissection.

Thirdly,—In Mr. Adams' case the aortic valves were studded with specks of bone(a). The state of the aorta is not noticed;

(a) Mr. Adams has given this important case at length in the fourth volume of the Dublin Hospital Reports. The following extract is abridged from the original report:

“An officer in the revenue, aged 68 years, of a full habit of body, had for a long time been incapable of any exertion, as he was subject to oppression of his breathing and continued cough. In May, 1819, in conjunction with his ordinary medical attendant, Mr. Duggan, I saw this gentleman: he was just then recovering from the effects of an apoplectic attack, which had suddenly seized him three days before. He was well enough to be about his house, and even to go out. But he was oppressed by stupor, having a constant disposition to sleep, and still a very troublesome cough. What most attracted my attention was, the irregularity of his breathing, and remarkable slowness of the pulse, which generally ranged at the rate of 30 in a minute. Mr. Duggan informed me that he had been in almost continual attendance on this gentleman for the last seven years; and that during the period he had seen him, he is quite certain, in not less than twenty apoplectic attacks. Before each of them he was observed, for a day or two, heavy and lethargic, with loss of memory. He would then

but the carotids and middle arterics of the dura mater presented bony depositions.

Fourthly,—In a case published by Dr. Cheyne, in the second volume of the Dublin Hospital Reports, in which the heart had greatly degenerated into fat, the valves were sound, but the aorta was studded with atheromatous concretions.

Fifthly,—Professor Law, in his original and important observations on the connexion between disease of the heart and brain, in the seventeenth volume of the Dublin Journal of Medical Science, gives an account of the appearances observed in

fall down in a state of complete insensibility, and was on several occasions hurt by the fall. When they attacked him, his pulse would become even slower than usual; his breathing loudly stertorous. He was bled without loss of time, and the most active purgative medicines were exhibited. As a preventive measure, a large issue was inserted in the neck, and a spare regimen was directed for him. He recovered from these attacks without any paralysis. Edema of the feet and ankles came on early in December; his cough became more urgent, and his breathing more oppressed; his faculties too became weaker.

“November 4th, 1819, he was suddenly seized with an apoplectic attack, which in two hours carried him off, before the arrival of his medical attendant.

“*Dissection fifty-six Hours after Death.*—The right auricle of the heart was much dilated. The right ventricle externally presented no appearance whatever of muscular fibres: it seemed composed of fat through almost its whole substance, of the same deep yellow colour as that which occupied the place of the left lung. The reticulated lining of the ventricle, which here and there allowed the fat to appear between its fibres, alone presented any appearance of muscular structure.

“The left ventricle was very thin, and its whole surface was covered with a layer of fat. Beneath this, the muscular structure was not a line in thickness; it had degenerated from its natural state; was soft, and easily torn, and a section of it exhibited more the appearance of liver than of a heart. The septum of the ventricles presented the same appearance. In both ventricles, even in the lining fibres, yellow spots, where fat had occupied the place of muscular structure, were to be observed. The whole organ was remarkably light; the valves were all sound, except those of the aorta, which were studded with specks of bone, but elsewhere were cartilaginous and elastic, from which they derived a disposition to remain closed; a fluid gently injected from the ventricle would pass them; still, when the heart was reversed and water poured from the ventricle upon them, their valves retained it; its weight was not sufficient to separate the edges of the thickened valves. There was much fluid blood contained in the heart.”—*Dublin Hospital Reports*, vol. iv., p. 396.

examining the body of the Earl of K., and states that the pulse was remarkably infrequent, sometimes not exceeding twenty-five beats in the minute. The patient was subject to syncope. The examination was made in London, and no mention is made of the state of the muscular substance of the heart; but it was found that the semilunar valves of the aorta were thickened and partially ossified, so that they could not effectually have closed the orifice. The brain was extensively softened, and the ventricles distended with a limpid fluid, and the substance of the left hemisphere, both cortical and medullary, was so softened as to present an almost creamy consistence. The arteries at the base of the brain presented opaque yellow depositions.

This case was, in all probability, an example, if not of fatty degeneration, at least, of a weakened state of the ventricle. It is another example of the combination of a singularly slow pulse, tendency to syncope, and disease of the aortic valve.

I am indebted to Mr. Adams for the particulars of an interesting case of slow pulse, with lesion of the aortic orifice, and remarkable softening of the left ventricle. The patient had been in excellent health up to within a few months previous to his death. He had no palpitation, dyspnœa, nor irregularity of the pulse. He had been exposed to various debilitating causes, and, when seen by Mr. Adams, presented a slow pulse and visible pulsation of the arteries of the neck. The pulse fell to below forty, and a loud *bruit de soufflet* could be heard along the aorta and in the region of the heart. Mr. Adams found the heart to be one of the most friable he had ever met with, breaking down under the slightest pressure of the fingers. The valves of the aorta were less diseased than could have been expected, considering the state of the pulse, and the visible pulsations noticed in all the arteries. The valves were not inadequate to perform their functions, from their being diseased or altered in their structure or form; but

the calibre or area of the aorta was so expanded that they could not prevent reflux into the ventricle.

I have lately seen another case presenting the combination of a pulse under thirty, repeated pseudo-apoplectic attacks, not followed by paralysis, and distinct valvular murmur with the first sound. The gentleman is advanced in life, but enjoys very good general health. He has always found that the attacks were increased whenever he was lowered by regimen or medicine. He takes a moderate quantity of wine, and is thus able to ward off the malady.

The preceding observations go to prove that the combination of the permanently slow pulse, with a diseased condition of the aortic opening, is not uncommon. We owe to Dr. Corrigan, the important practical observation, that in cases of permanent patency of the aortic valve, the patients do not generally bear a reducing system, but are best treated by a tonic, or even stimulating regimen; and I entirely agree with Professor Law in his opinion, that the pseudo-apoplectic attacks, in cases of slow pulse and weakened left ventricle, are more frequently attributable to a diminished or feeble circulation, than to one of active congestion.

We have thus seven cases of permanently slow pulse. In five, organic disease of the aorta or the valves, or both, was discovered on dissection; and in four, a manifest aortic murmur existed: in two of the cases the second sound was normal; and in two there was the murmur of regurgitation in the aortic valve(a).

I do not believe, however, that the aortic murmur is any direct sign or necessary combination of the weakened heart. Its occurrence in these cases manifestly arises from the combi-

(a) In Dr. Robert Smith's published cases of fatty degeneration of the heart, the valves were healthy. The patients were both very old women, and no stethoscopic observation is recorded. The pulse was very slow. These patients were not under Dr. Smith's care. See also the important case of fatty degeneration of the heart, communicated to the Pathological Society by Mr. Carmichael—Transactions of the Society for 1840.

nation of aortic disease; and we have abundant evidence that a weakened heart, without aortic disease, may exist, and yet no murmur be produced. In the typhoid softening of the heart, we have rarely recognised a valvular murmur; and where it did occur, there was reason to believe that carditis had supervened. The typhoid softening, with a pulse from 30 to 40, commonly exists without any murmur.

In Dr. Cheyne's patient a remarkable state of the respiration was observed for some time before death. "For several days," says Dr. Cheyne, "his breathing was irregular; it would entirely cease for a quarter of a minute, then it would become perceptible, though very low, then by degrees it became heaving and quick, and then it would gradually cease again. This revolution in the state of his breathing occupied about a minute, during which there were about thirty acts of respiration."

I once witnessed this condition of breathing, but had not an opportunity of making a dissection. The patient was a gentleman of about sixty years of age, and of spare habit; his ailments commenced with a sudden and severe attack of dyspnœa, which subsided, leaving him to all appearance perfectly well; this returned at irregular intervals. When I saw him he had a full, soft, pulse, and a loud though varying murmur with the first sound, propagated into the aorta. At the top of the sternum the murmur was intense, and on several occasions the arteries seemed to pulsate with a force much greater than could be expected from the impulse of the heart. For more than two months before his death, this singular character of respiration was always present, and so long would the periods of suspension be, that his attendants were frequently in doubt whether he was not actually dead. Then a very feeble, indeed barely perceptible inspiration would take place, followed by another somewhat stronger, until at length high heaving, and even violent breathing was established, which would then subside till the next period of suspension. This was frequently a quarter of a minute in duration. I have little

doubt that this was a case of weakened and probably fatty heart, with disease of the aorta.

Professor Law has lately communicated to me the following note of a case under his care in Sir Patrick Dun's Hospital. It is an example of a very weak heart, with the pseudo-apoplectic attacks.

Colin Baird, admitted March 10th, 1846, ætat. 44, states that about three years ago he was suddenly attacked with a fit, which he describes as coming on without any warning; his sight suddenly failed, and he fell down; this fit only continued a minute or so, leaving him stupid for some time. After the first attack the patient states that his health was bad for two months, when he resumed his trade, being occasionally attacked at irregular intervals, varying from two to three months, till the attacks became more frequent; and at length came on ten or twelve times in the twenty-four hours. These attacks are induced on by smoking, or drinking spirits. The patient, who complained of weakness, appeared worn out, and older than he really is; pulse thirty; heart's action very weak, and the sounds scarcely audible.

Dr. Law treated the attacks as examples of syncope, and prescribed a generous diet and stimulating medicines. On one occasion the pulse fell so low as twenty-four in the minute. It was observed, occasionally, that after each distinct beat of the heart there was a species of commotion of the organ, as if another pulsation was attempted. These peculiar minor pulsations also occurred in the case of Butler, and were observed on several occasions. It would seem as if in the weakened heart, there were two kinds of contractions; in one, the systole of the heart is broken up, as it were, into a number of slight and irregular contractions, giving a permanently irregular and rapid pulse. This is the sort of pulse which is so common in the combination of hepatic and cardiac disease, such as occurred in the case of Mr. Colles. In the second form, the contractions are complete, and with long intervals; and this is seen

in the cases now under consideration. But the occurrence of those minor pulsations is interesting, as shewing a connecting link between the cases of weakened heart, with a rapid though irregular pulse, and those where the pulse is slow and regular.

The preceding observations are published with the view of drawing the attention of the Profession to a combination of cerebral and cardiac phenomena, of which our knowledge is still imperfect.

ART. IV.—*On the Microscopical Character of Mollities Ossium.*

By JOHN DALRYMPLE, F.R.C.S., Surgeon to the Royal Ophthalmic Hospital, Moorfields, London. With Illustrations.

THE object of the following observations being to illustrate the pathology of mollities ossium, and not the particular case in which the disease occurred, I shall detail no symptoms, nor mention the various phases of the malady. The case, in itself sufficiently curious, will, in all probability, be made public by the physician who had charge of the patient; while some minute chemical observations by Dr. Bence Jones, on the condition of the urine, which formed an extraordinary feature throughout the illness, will either be published in the Transactions of the Royal Society, or be appended to the case by Dr. MacIntyre, who attended the subject of this disease.

It may, however, be interesting to state, that no suspicion of the affection of the bones existed during the life of the patient, and the mollities was only revealed by the post mortem examination. As the disease does not appear to have extended to the long bones, it is not remarkable that this should have been overlooked.

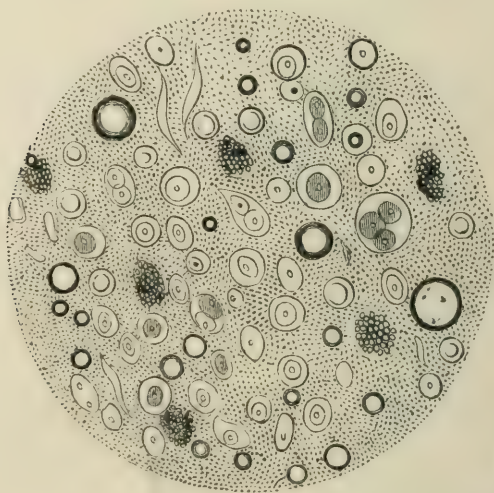
Throughout, the case presented many anomalous symptoms, and a minute detail of its history and progress cannot fail of being interesting to the Profession. In justification for publishing the microscopical appearances of the bone, prior to the history of the case appearing in print, I may be permitted

to observe, that the following remarks are simply a contribution to the minute morbid anatomy of an interesting and as yet insufficiently studied subject.

Examination of two lumbar vertebræ and a rib, affected by mollities ossium:

The disease appears to have commenced in the cancellated structure of the bone, for the external osseous laminæ are firmer and more healthy than the internal. The smooth surface of the rib, however, is raised by internal growths elevating the outer laminæ here and there, into irregularly-sized and rounded dark red projections, visible through the periosteal covering. The outer layers are still hard, requiring the exertion of some force to cut them; they are thin, however, and when sliced, expose large cancellous cavities filled by a red gelatiniform substance, threaded here and there by fine bony fibres. It is in these fibres of still existing bone, that many of the more important morbid changes may be witnessed.

The gelatiniform substance, as shewn in the accompanying wood cut, is composed of—



1st. Granular matter.

2nd. Oil globules.

3rd. Fat cells.

4th. Nucleolated nuclear cells.

5th. Caudate cells.

6th. Blood cells.

Examined by a power of about 600 linear, we find that :

1st. The granular matter appears to be the disintegration of the tissues, or of the effete cells, mixed with an infinity of oil globules of great minuteness; partly also the granular matter which has escaped from bursten nucleated cells, since these latter are found to contain similar microscopic granules. It may be questionable whether any part of this granular matter be molecules of phosphatic earth.

2nd. Oil globules are very numerous, of various sizes, from the 8000th of an inch in diameter, to the 300th, or even larger. They are easily recognised by their dark outlines and high refractive power, and seem to be floating free amongst the various nucleated cells. They are very frequent in the specimen of diseased vertebræ, but less numerous in the rib.

3rd. Fat cells. Besides the oil globules, many dark granular cells are observed, mostly of an oval form, and somewhat irregular as to size; they seem to consist of a fine transparent cell wall, the interior filled by round oil globules closely aggregated, and thus giving them their dark appearance. In almost all respects, they resemble the adipose cells found in colostrum, and are well represented by fig. 21, in the fifth plate of Henle's *Anatomie Générale* (French translation), specimen D. taken from the fluid of colostrum.

In some, whose shape is more irregular, the cell wall appears to have burst, and the globules are simply aggregated by a cohesive force, the globules disgregating on pressure, and constituting the free oil globules found floating in the fluid.

4th. Nucleated cells appear to form the bulk of this gelatiniform mass, and appear in great numbers, of different sizes and forms, probably modifications only, or more or less advanced stages of the same matter. The greater number are round, some are oval, others more irregular and pointed at one extremity. The round and smaller ones are about one and a half to twice larger, than the average blood cells, and, for the

most part contain a single and faint grey nucleus, with a very bright and distinct nucleolus.

The oval cells have frequently two included nuclei, each with a bright nucleolus.

The larger and more irregular cells often contain three nucleolated nuclei, but rarely more; once or twice I have seen indications of a fourth included nucleus. In all the cells, besides the nucleus, there is some very fine granular matter, appearing as fine black points.

5th. Caudate cells are very rare; but a few are recognised as feeble attempts at progressive development. There are, however, no perfect filamentous tissue cells to be seen.

6th. Blood cells, or blood disks, normal in every respect, are very numerous, extravasated amongst the other cells, and giving the red colour to the gelatiniform mass.

This account of the soft matter found in the cancellated cavities of the diseased bone, accords very nearly with the description given by Mr. Birkett, in Mr. Solly's paper on Mollities Ossium(*a*); but the statements of Mr. Rainey and Mr. Simon differ so much from Mr. Birkett's, and from each other, in their observations on the same specimen of disease, that we are left in some doubt as to the actual appearances.

Mr. Rainey describes "a multitude of roundish bodies about the size of blood corpuscles, each of those bodies filled with a minutely granular substance" (*loco cit.*), he making no observation of nucleus or nucleolus. Again, he states, "Besides these bodies it contained also fat globules, but no regular fat vesicles;" whilst Mr. Simon "was unable to discover any new cell formation, or at any rate any mature one; cytoblasts were exceedingly plentiful, so as to suggest the probability that some such process was in progress, but nothing further, with the exception of some two or three apparently detached young fat cells."

These discrepancies, may, perhaps, be accounted for on the

(*a*) Medico-Chirurgical Transactions, vol. ix. New Series, p. 453.

supposition that these three gentlemen pursued their investigation on different portions of bone, from distinct parts of the body, and in more or less advanced stages of the disease; for while Mr. Birkett found a few caudate cells in the cranial bones, he discovered none in the vertebræ, and in the femur "nothing but fat cells and blood disks."

Be this as it may, a very important part of the investigation remains untouched, viz., the condition of the still existing bone or previously healthy tissue. It will be interesting, therefore, to determine, if possible, the point where the hard parts of the bone first begin to suffer, by what means the original textures are removed, and the new matter made to occupy the place formerly filled by the healthy bone, and its proper constituents.

It may at once be premised, that of the soft elements found in the diseased mass, the oil globules, fat cells, and blood disks (within vessels), existed in the normal condition of the bone. The two former are those found in excess, and the latter are extravasated. The nucleated cells, of whatever kind, probably are new, and, therefore, morbid. These, together with granular matter, the debris of effete cells and broken down tissue, with a fluid menstruum, constitute the gelatiniform mass, that occupies large cells or enlarged cancelli of the bone; thence certain hard parts or bony fibres have disappeared, have become softened, dissolved, and carried away, with their bone cells, proper canaliculi, and the former apparatus of growth and nutrition, Haversian canals, lining membrane, and capillary vessels.

In order to estimate the process of this destruction, it is necessary to state, that, as regards the parts submitted to my observation, viz., the lumbar vertebræ and ribs, the quantity of tissue removed has not been replaced by an equal quantity of new or morbid matter, but that a real diminution has taken place, a veritable interstitial absorption. The lumbar vertebræ scarcely exceed in thickness the intervertebral substance, and have lost nearly one-third their normal bulk.

In the second place, besides the loss of bulk, there is a great deficiency of the cohesive properties of the bone, which can now be broken or cut with facility, in some places bent without fracture, in others rendered more brittle, and easily fractured.

This, it is evident, is due to the loss of the earthy constituents of the bone; this degeneration, however, is not uniform, but more immediately in the neighbourhood of cavities containing the gelatiniform substance; since even remains of cancellated bony fibres are found passing through these morbid masses, sometimes little altered, at others softened, but not destroyed, in a state of metamorphosis rather.

The external tables of the bone resist longer than other parts, and a whole bone may be so soft, *generally*, as to bear to be bent without breaking, although the external laminæ are still so hard as to be cut with difficulty, even with a strong knife.

The disease, therefore, probably, commences in the cancelli and medullary canals, and proceeds from the Haversian canals to the bone cells and canaliculi. It is to these latter points that attention must be directed.

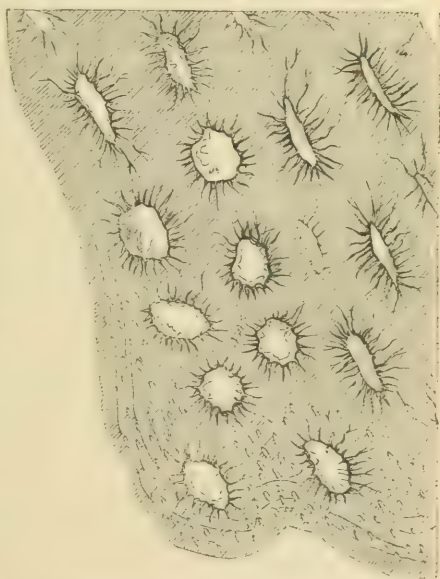
If a minute fragment of bone be selected from the edge of one of these cavities, which contain the soft red matter, we shall often find edges thin enough for microscopic observation, without further interference than simply washing it clean from the nucleated cells and blood disks that surround and adhere to it. If it be then examined with a power of about 600 linear, certain changes of importance will become visible. The edges of the bone, at the very margin of the cavities alluded to, are reduced to the greatest possible tenuity, and appear to be embedded in a mass of nucleated cells, which adhere with great tenacity to the bone. When these are washed away, the bone itself seems composed of polyhedral cells, resembling some forms of vegetable tissue, but these cells are indistinctly visible, appear below the surface, and out of focus. When the eye is brought to look upon the superficies, the proper bone cells (bone corpuscles of some authors) become apparent. Instead, however, of the usual

elongated, narrow oval cell, with more or less extended dendritic canaliculi radiating from their parietes, they are found considerably enlarged, or irregularly round, and the canaliculi proportionately shortened, in so much that the diminished length of the canaliculi seems to depend upon the enlargement of the cells whence they originate, or into which they pass.

At first sight the bone cells appear more numerous than is natural, but this is due to the approximation of the cells to each other, by reason of their mutual enlargement.

In those instances where the bone cells have undergone only early changes, although the enlargement and alteration of figure be still perceptible, the canaliculi are less disturbed, and in some aspects appear as if truncated, and crop out of the surface, resembling the tubular structure of ivory, when cut transversely to the direction of the tubes.

Away from the edges, or as we approach more solid portions of bone, presumably less implicated in the disease, the bone cells are found more of their natural size, more of their normal figure; the canaliculi longer and more arborescent,—in fact, less interfered with by diseased action, as is shewn in the accompanying cut.



It is difficult in such an investigation to say whether these enlarged bone cells are occupied or not by any of the nucleated cells, for as the gelatiniform matter surrounds on all sides the portions of bone, and as it is composed of myriads of cells,

blood cells, oil globules, and granular matter, it is obviously impossible to gain a view of the bone cells without a careful washing of the specimen in many waters.

The cellular *appearance* of the bone before spoken of, seems to be due to portions of the structure immediately surrounding the bone cells being more transparent than elsewhere, as if indeed the denser part of the tissue immediately around a system of these bodies had been absorbed, and so enabled the transmitted light to shine through more easily. Although this is a point not very clearly determinable, especially as this appearance is more readily recognised when the instrument is not in its true focus, yet it favours the belief that absorption is set up in the immediate neighbourhood of the bone cells, and encourages the view that the enlargement of these cells is due to progressive absorption from their inner walls, and thus that their natural function of growth and support is in this instance perverted.

It is true, however, notwithstanding what has been assumed above, that we as yet want definite knowledge of the functions of the bone cells, and their canaliculi, in the normal state; it is probable, however, that they are subservient to the purposes of growth and nutrition. In a transverse section of a long bone, they are found arranged with a good deal of regularity in the concentric osseous laminæ which surround each system of Haversian canals. These latter conduct the capillary plexus of blood-vessels; the plasma, or that fluid which contains the proper elements of nutrition, is eliminated without doubt from these blood-vessels. May not, then, the canaliculi, as a system of capillary tubes, convey the fluid to the bone cells, as organs of appropriation, and may not, also, effete parts, the displacement of old, as well as the replacement of new molecules, go on by these channels?

The observations made in the specimen of mollities ossium lend some colour to this view. In the neighbourhood of the diseased cavities from whence bone earth has already been re-

moved, we find the bone cells all enlarged, and altered in figure, interstitial absorption going on from surfaces, viz., from the inner walls of the bone cells themselves. Thus gradually enlarging, they at last run one into the other, and constitute the hollows, now filled with the reproductive nucleated cells, and the debris of old tissue.

While this destructive process goes on, we have evidence of undue turgescence of the vascular system. I am not aware whether any injection, or at least any *microscopically successful* injection, has ever been made of bone in this disease, but its greatly increased redness, even the extravasation of the so numerous blood disks, are proofs of the fact. Blood long effused undergoes many changes, microscopically considered; the cells become shrivelled, irregular, crenated, &c.; here, however, the disks are, for the most part, wholly normal.

Presuming, therefore, either a high degree of vascular congestion or of vascular activity to be present, the proper functions are perverted. Original structure is removed, soft as well as hard elements are carried out of the part by its own vascular system, and out of the body by the excretory glands, the still healthy kidneys. The particular case now under observation evidenced the most extraordinary morbid excretion furnished by perfectly healthy excretory organs, the depuration of a vitiated blood. But while this waste or disintegration of the bone is going on, while the local circulation appears to be active, and the supply of blood increased, the lost parts are not replaced by new matter of a like kind; in place of a molecule of bone restored for one removed, we find cytoblasts, a nucleolated nuclear cell, each probably, as in malignant disease (with some special differences), capable of furnishing its like.

These facts admitted, were we to examine no further, *mollities ossium* would be reduced to the category of malignant diseases, a simple fungoid condition of the bone,—to which, indeed, it bears some superficial resemblance.

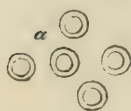
In true malignant disease of bone, original structures are

destroyed, and replaced by new and soft matters, but the mass ever increases, new cells go on producing still newer ones, until sometimes the tumour attains enormous bulk. In the true osteo-sarcoma, new bone is, however, formed, not much differing in its essential characters from healthy bone, while in the disease under consideration no new bone is ever formed, and the real bulk of parts is diminished.

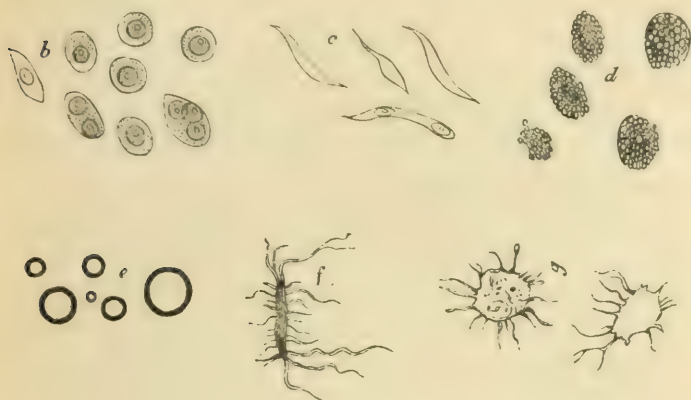
It seems probable, therefore, that in mollities ossium the nucleated cells have a limited duration of life; some feeble attempts at progressive development are seen in the caudate cells, but after a certain reproductive process the majority die, or become disintegrated, are resolved into granular matter and oil globules, dissolve, and are carried out of the system by the circulation of the kidneys.

Such cells will therefore take a position a little above pus formations; pus cells are nucleated, do not probably reproduce themselves, have a short time of existence, die, become disintegrated, fall into granular matter, oil, and liquor puris, and are, as we know, often absorbed. In mollities, the nucleated cells do probably reproduce their like; the original cell bursting, and giving out its nucleus, or nuclei; these latter pursue a similar course, then become disintegrated and fall to pieces. This explanation will account both for the very different shapes, sizes, and numbers of these cells and their included nuclei; while their shorter period of life, or ready disintegration, separates them from those higher forms of malignant disease, where the mass increases the more rapidly as it approaches its conclusion, or advances in a sort of arithmetical progression, until the patient is exhausted by the demand made upon the system for ever-increasing growth.

[In order to render the foregoing remarks as clear as possible, the accompanying wood engravings have been made from very accurate drawings by Mr. Dalrymple. In these, *a* represents a blood disk, as means of comparison



for size; *b*, different forms of nucleated cells; *c*, caudate cells; *d*, fat cells; *e*, oil globules; *f*, natural aspect of a bone cell; *g*, enlarged and morbid bone cell.]



ART. V.—*Remarks upon Cerebro-spinal Arachnitis, as it has lately appeared in the Irish Workhouses and some of the Dublin Hospitals.* By ROBERT MAYNE, M. B., Physician to the South Dublin Union Workhouse, and Lecturer on Anatomy and Physiology at the Richmond Hospital School of Medicine.

THE disease which forms the subject of the following pages consists essentially in acute inflammation of the membranes which invest the brain and spinal marrow; and from the post mortem appearances presented by the fatal cases which have fallen under my observation, the arachnoid seems to be its especial seat.

This disease, so far as I have been able to ascertain, has but recently made its appearance in Ireland; and to my friend, Dr. Darby of Bray, his professional brethren are indebted for the first notice of its ravages. During the months of January, February, and March, of the present year, several cases occurred in the Rathdown Union workhouse, to which he is physician,

and of these he submitted a detailed account to the Surgical Society of Ireland on the 21st of March last.

In the South Dublin Union workhouse favourable opportunities have been afforded to my colleague, Mr. Shannon, and myself, of observing this disease; and upon the 11th of April, I exhibited at the meeting of the Pathological Society of Dublin, the morbid parts removed from two patients who had died under my care, together with an admirably executed drawing of the same by Mr. Connolly.

In the months of April and May the Belfast workhouse was visited by the same epidemic. It there proved rapidly fatal to some of the boys of the institution; and in June, Dr. Robert W. Smith and Dr. Benjamin M'Dowel were commissioned to investigate its nature. The particulars there ascertained have been kindly placed at my disposal, and to the able report of these gentlemen I am indebted for much valuable information.

Some of the hospital physicians in this metropolis have likewise observed this affection. In the early part of the month of June, my friend, Dr. M'Dowel, met with two fatal cases at the Hardwicke Hospital, with the notes of which I have been favoured; and I understand Mr. Smyly and Dr. Law have each witnessed examples of the complaint.

Although comparatively little known in these countries, cerebro-spinal arachnitis appeared in an epidemic form in France during the years 1840, 1841, and 1842, and there presented such formidable characters that many reports on the subject were laid before the *Académie Royale de Médecine*. A disease which attracted so much attention in France during several successive years, can hardly fail to prove extremely interesting to the Profession in this country, now that it has appeared unequivocally in Ireland, in at least three different localities.

Its pathology seems to have been nearly uniformly the same, wherever examined: the serous membrane covering the brain and spinal marrow has been found invariably the seat of exten-

sive inflammation; and, unlike the more ordinary forms of arachnitis, the *spinal* arachnoid always suffers much more severely than the *cerebral*.

In the post mortem examinations which have fallen under my notice, the scalp and dura mater exhibited but little undue vascularity; the pia mater covering the hemispheres of the brain was congested, and the large veins in their way to the several sinuses appeared remarkably turgid.

The free surface of the cranial arachnoid felt dry and clammy, and had lost its transparency in many places, particularly at the base of the brain; but there was no lymph or other inflammatory effusion in the sac of the arachnoid. Lymph of a yellowish or greenish hue appeared on the surface of the encephalon *beneath* the serous tunic; this occurred sparingly on the upper surfaces of the hemispheres, and there only along the sulci, but at the base of the brain it was found in greater quantities, especially in the sub-arachnoid space corresponding to the circle of Willis, where many of the cerebral nerves at their origin were fairly imbedded in it.

In the spinal canal a similar exudation filled the sub-arachnoid space; it there existed in sufficient abundance to envelope the cord completely; it also extended down to the lowest extremity of the cauda equina, investing each of the spinal nerves at its source; but in the vertebral canal, just as in the cranium, the cavity of the arachnoid contained none of this morbid secretion. The substance of the brain and spinal marrow appeared remarkably free from lesion; there was no unusual vascularity, induration, or softening apparent, nor did the ventricles betray any evidence of inflammation.

In the cases reported, however, the brain and spinal marrow are stated to have been occasionally implicated; in some the ventricles of the brain contained inflammatory effusions and the choroid plexuses appeared unusually vascular, in others more or less of the substance of the brain and spinal marrow was found in a state of softening; in a certain number sero-

purulent effusion was detected at the base of the brain and in the theca vertebralis; but in every instance the serous membrane was the part essentially engaged, whilst the nervous material seldom suffered, and when affected it was only accidentally involved, the disease having been in such cases evidently propagated to the substance of the cerebro-spinal axis from its membranous investments.

A remarkable feature of this malady is the class of persons on whom it has seized. In Ireland, so far as has been ascertained, boys under twelve years of age have been, with few exceptions, its only victims: the seven cases reported by Dr. Darby were all boys, and only one of them had passed his twelfth year; in Belfast ten cases of the disease were noted, all occurring in boys from seven to twelve years of age; and in my own experience, individuals of the same description have alone been attacked.

It is a curious circumstance that in France the complaint appeared for the most part amongst the conscripts who had lately joined their regiments; and Versailles, Lyons, Metz, Strasbourg, Avignon, Nancy, and Poitiers, were the places in which it proved most destructive to life. Although females have been very rarely attacked, yet they are not exempt from its invasion, for, at the Hardwicke hospital, one of Dr. McDowel's patients was a girl of seventeen, and the other a woman aged thirty-six years.

The symptoms by which this affection commences are in general of a very formidable character, and its accession is usually sudden and quite unexpected; in the majority of cases the patient has been in his ordinary health and spirits up to the very moment of the seizure, and has experienced no premonitory symptoms to warn him of his danger. In four of the cases at the South Dublin Union, the boys had eaten a hearty dinner and retired to bed in apparent health, when the disease all at once declared itself. In many instances it commences with severe pain in the abdomen, followed immediately by

vomiting, and not unfrequently by purging. In the worst cases these symptoms are accompanied by marked collapse, the extremities are cold and blueish, the pulse is at this time a mere thread, and altogether the disease assumes very much the aspect of cholera. After the lapse of a few hours, reaction, more or less perfect, ensues; the muscular system then presents characters which may be considered almost pathognomonic. The muscles of the extremities, and those of the neck in particular, become remarkably rigid, the head is drawn back upon the vertebral column, and firmly fixed in that unnatural position; no efforts of the patient can bend it forwards, neither can the attendants do so, at least by the employment of any justifiable force. The countenance at this period often assumes very much the tetanic expression; twitchings of the muscles of the face sometimes ensue; the patient loses in great measure the power of moving his extremities, so that he is quite unable to assume the erect position, the surface becomes hot, the pulse full and frequent (from 120 to 140); the stomach often continues irritable, whilst an insatiable thirst torments the sufferer; and the epigastrium evinces marked tenderness upon pressure.

Symptoms of a still more distressing nature quickly supervene: the patient may be seized with general convulsions, of frightful severity, requiring personal restraint to protect him from injury; or he may lie in a semi-comatose condition, constantly moaning and grinding his teeth, or even crying incessantly. Towards the close of his sufferings he generally merges into perfect coma, the pulse becomes slow and laboured, the powers of speech and deglutition fail, his stools are passed involuntarily, and death finally closes the scene. All this may occur in a surprisingly short space of time; some of the cases ran their course in forty-eight hours, and the greater number terminated about the fourth day, whilst some few were prolonged over a fortnight or three weeks. Examples are on record of death from the disease in so short a period as fifteen hours.

It should be mentioned, that although in some cases symptoms directly indicative of mischief within the cranium were early observed, such as pain more or less intense in the head, heat of scalp, congestion of the conjunctiva, strabismus, intolerance of light, &c., yet in many no such evidence occurred, until the laboured pulse, the dilated pupil, the profound coma, or the severe convulsion, told but too plainly that the death-struggle was at hand.

In some instances an exalted sensibility of the cutaneous surface generally has been remarked, the patients being "sore all over," and wincing upon the slightest touch, or refusing to change their position in bed, from the pain consequent upon the slightest movement (the observation of this symptom is due to Dr. M'Dowel); but far more frequently a diminution of tactile sensibility and confirmed stupor have afforded grounds for the worst anticipations.

I have more than once had occasion to notice irregular and laboured respiration as a leading symptom; and this in itself, in the absence of stethoscopic evidence of thoracic disease, would constitute a valuable diagnostic.

Notwithstanding that the distressing tenderness of the epigastrium, associated with continued irritability of stomach, would seem to indicate decided disease of that viscus, I have nevertheless found the abdominal viscera absolutely healthy in the necroscopic examination of two cases, in which these symptoms persisted in a very marked manner to the close.

The fatality of this complaint, since its appearance in Ireland, has been great, although its treatment has been conducted by several different physicians; however, such a result will scarcely be considered extraordinary, when the terrific nature of the malady is taken into account; and if *our* remedies have proved frequently unavailing, our Continental neighbours have encountered even a greater share of disappointment. At Avignon, M. Chauffard, who enjoys the reputation of great ability in his profession, lost no less than twenty-nine of the

first thirty cases committed to his charge; and, according to statistical calculation, not less than eighty per cent. of the cases noted during the epidemic in France terminated fatally.

The line of treatment most likely to prove successful requires our fullest consideration. It is much to be feared, that when symptoms denoting extreme collapse shew themselves from the commencement, all the resources of our art will prove unavailing. The prompt application of the most powerful excitants to the cutaneous surface, particularly mustard and turpentine, aided by heat and friction, and directed specially to the region of the spine and to the extremities, seems to promise some advantage. Diffusible stimulants should probably be employed as sparingly as possible, seeing that an intense inflammation, affecting the very centres of animal life, must remain, after re-action sets in, to be combated. General and local depletion, so soon as it can be borne with safety, and the early and free exhibition of mercury, both by the skin and stomach, should constitute our chief dependence.

Even this active treatment will often disappoint us. In one case, the jugular vein was opened by myself within a few hours after the accession of the complaint, and blood was drawn, in a full stream, as long as the boy's strength would permit. This was followed up, at short intervals, by relays of leeches to the temples and mastoid processes. The mercurial plan was, at the same time, most energetically pursued, and blisters, with mercurial dressings, were applied to the head and along the spine. Yet all was of no avail; my patient died, in convulsions, on the fourth day. In other instances which have occurred to me, the very same measures have been attended with perfect success. This may lead us to expect favourable results hereafter; particularly should future cases, as usually occurs in the progress of an epidemic, assume a milder and more manageable form than those first observed.

In France, the greatest discrepancy of opinion has prevailed as to the relative value of different modes of treatment.

Blood-letting, to an extreme degree, has had its advocates, but experience proves that, *per se*, it is often unsuccessful. The revulsive plan, followed by depletion, has produced favourable results in the hands of M. Rollet. His method is, to apply the actual cautery to the integuments in the vertebral grooves; and as many as eight burns, to the third degree, produced in this manner upon each side of the spine, have been attended with the happiest effects in bringing about reaction; but, in Ireland, practitioners will probably content themselves with local remedies, equally efficacious, and more unobjectionable.

From an idea that cerebro-spinal arachnitis originated at Bordeaux, in miasmata, and from the disease having been occasionally observed to assume in that locality an intermitting type, sulphate of quinine was much employed in its treatment by M. Gassaud. We have, however, in this country, little reason, as yet, to attribute the complaint to any such origin; nor have we been able to detect in its symptoms any analogy to intermittent fever. In the present state of our knowledge, therefore, few of the Profession will probably feel disposed to follow such practice.

Even opium has upon the Continent enjoyed the reputation of curing this malady, but upon what principle it is difficult to imagine. That it exerts most powerful influence upon many spasmodic and convulsive affections, will be readily admitted; but with such precise knowledge of the pathology of this disease as we have now before us, I should feel very reluctant to employ narcotics in its treatment.

In this, as in other acute serous inflammations, the French practitioners seem to have overlooked the advantages of mercury; yet I feel convinced that in Great Britain and Ireland medical men will place their chief reliance upon its efficacy.

The origin of these cases, like those of most other epidemics, is involved in the greatest obscurity, and none of those which have been from time to time assigned are worthy of the slightest credit. If amongst the conscripts in France who

had lately joined their standards, it had been produced by the fatigues of their journey, or grief at parting from their friends, or the excesses of the march, or insufficient ventilation in their barracks, the same disease ought to have prevailed from time immemorial in the French army, which has been continually subjected to these influences; or it ought to have attacked indiscriminately those who were placed under circumstances favourable to its development; but such was *not* found to be the case.

In this country it will be a matter of equal difficulty to explain its etiology. Why the boys of three different workhouses should be its victims, whilst the girls, an equally numerous class, and to all appearances placed under precisely the same hygienic conditions, should escape, we are unable to conjecture.

That the disease is of an epidemic nature seems to be proved by its whole history; and particularly by the simultaneous appearance of cases in several districts remote from each other, as well as by the absence of any proof that it has been ever propagated by contagion.

Some of the French physicians have ascertained, that in many instances the sufferers were affected with intestinal worms, and by them much stress has been laid upon this complication; but when we consider the great rarity of cerebro-spinal arachnitis, whilst multitudes of the human race are tormented with worms,—and when it is further borne in mind that this disease was, up to a very recent period, unknown, whilst internal parasites have notoriously affected mankind since the earliest records of medical science,—to attribute such a formidable malady to the presence of ascarides would be to hold an opinion perfectly untenable.

ART. VI.—*Observations on the History of the Cure of Popliteal Aneurism by Compression.* By THE EDITOR. With Cases by the late CHARLES H. TODD, Professor of Anatomy and Surgery to the Royal College of Surgeons in Ireland; SIR PHILIP CRAMPTON, Bart.; J. W. CUSACK, V.P.R.C.S.; R. ADAMS, A.M., M.D.; and PROFESSOR HARRISON.

THE following cases having been placed in our hands by Sir Philip Crampton, Mr. Cusack, Mr. Adams, Dr. Robert Todd, of King's College, London, and Dr. Harrison, of the University of Dublin, we present them to our readers, together with such information, bearing upon the history of the cure of aneurism by compression in Ireland, as the literature of medical science affords, or as we have gleaned by conversing with those who are more familiar with the subject than ourselves, or who were eye-witnesses of those successful cases on which the present mode of treatment has been founded.

We have been induced to enter into the merits and details of this matter in the present form of an editorial article, at the suggestion of some friends who were anxious to have put forward in their true light, the just and honest claims of those who were entitled to merit for the introduction and practice of this most important improvement in surgical practice; and as far as in us lies we shall endeavour to set our readers and the professional public right with regard to a discussion still unconcluded in these kingdoms. This is a duty incumbent upon us as journalists; and not having been engaged in the treatment of any of these cases ourselves, we think we are, or at least we should be, the less likely to be swayed by influences or partialities that few among us are entirely free from. Moreover, we think that, as the entire merit of this invention is due to the surgeons of this city, it is from an Irish periodical that the true statement should come.

We do not propose to enter into the history of all the cases that have been treated, nor to entertain at any length

the question of the *modus operandi* of the cure. Mr. Storks, of London, when recording two successful cases of his own, in the *Lancet* of the 23rd of May last, published a table exhibiting (with the exception of Mr. O'Ferrall's)(a), all the cases which have lately appeared in the journals,—by whom the pressure was applied,—the seat of the disease,—the time occupied in the treatment,—the result, and other matters of minor detail: and Mr. Storks acknowledges, in conclusion, that “the profession is much indebted to the Dublin surgeons for the introduction of a practice which promises, in many instances, to supersede an operation which in the best of hands has proved too often fatal.”

The first case which was treated successfully in this country, of late years, was that of Michael Duncan, who was cured of popliteal aneurism in the Richmond Hospital, by Dr. Hutton, between the 3rd of October and 27th of December, 1842; and this case, together with one by Mr. Cusack, and another by Dr. Bellingham, were related at the meeting of the Surgical Society on the 22nd April, 1843. The two former of these were published in the sixty-eighth Number of our former series (pp. 364-9), which was in circulation before the end of that month; and this was the *first* notice that appeared in print of these cases. Dr. Bellingham's was not reported till some days after. In describing his case, Dr. Hutton says: “The patient being reluctant to undergo the operation, I resolved to try compression of the femoral artery; and I entertained some hope of success from being informed by Mr. Adams that the late Mr. Todd had succeeded in a similar case, of which no account has been published.”

Mr. M'Coy also acknowledged the priority of Mr. Todd, in a communication which he made to the Surgical Society, on the 8th of April, 1843, relative to a case treated many years ago by Mr. Duggan, to which we shall presently refer.

(a) Dublin Hospital Gazette. October 15. 1845.

Immediately following Dr. Hutton's communication in our Journal, is another to the same effect, by Mr. Cusack, of a man cured of a popliteal aneurism by the like means, in Steevens' Hospital, in January, 1843; in detailing which to the Surgical Society, Dr. Fleming stated that Mr. Cusack was induced to put this mode in practice from his remembrance of the favourable result of a case treated successfully by compression by the late Mr. Todd. In our next Number, that for June, 1843, we published the first essay upon this method of treatment, afforded us by Dr. Bellingham, to which paper we refer our readers for a very admirable *resumé* of the history of compression, and also notices of all the instruments then employed to effect that purpose. In this account, Dr. Bellingham says: Richerand in the second volume of the *Dictionnaire des Sciences Medicales*, "has related, perhaps, the earliest case of this kind: it was that of a grocer in Paris, the subject of popliteal aneurism, who, by preserving the recumbent posture for twelve months, restricting himself to a low diet, with a bleeding once a month, and at the same time compressing the artery in the thigh by means of an instrument, constructed on the same principle as a truss, was perfectly cured." About the year 1817, the Baron Dupuytren is said to have cured a case of popliteal aneurism by pressure; but Mr. Adams, who witnessed it, informs us that it did not turn out successfully. At page 463 of his essay, Dr. Bellingham also states: "The late Mr. Todd, some years ago, successfully applied compression by an instrument different from any of those alluded to, in one case of popliteal aneurism."

Our readers are, no doubt, well aware, that the idea of curing an aneurism by compressing the artery in which it occurs, between the heart and the sac, is neither an entirely novel procedure, nor confined to the practice of continental surgeons. Speaking of the dangers attending the Hunterian operation, Sir Philip Crampton in his truly practical essay upon aneurism, published in the *Medico-Chirurgical Transactions*, in 1816, says: "All practical surgeons will admit that

they look with anxiety for some means of averting dangers, the reality of which they have but too often had reason to lament. Accordingly we find Mr. Hunter himself, Sir Everard Home, Sir William Blizard, and several other distinguished surgeons, both in these countries and on the Continent, endeavouring by various contrivances to *compress the artery from without*, with a view of taking off the force of the circulation from the sac, *without inflicting any injury on the diseased vessel*. Their attempts, however, have not been attended with success, and the causes of failure are too well understood to render it necessary to insist upon them in this place." And that compression was tried, even in this city, so early as 1815, we learn from the following paragraph in the essay from which we have just quoted:—alluding to a patient of Mr. Dease's, labouring under popliteal aneurism, Sir Philip says, "A few days before Mr. Adrian had, by a contrivance similar to Sir W. Blizard's, endeavoured to *compress the artery from without*; but by no force that could be borne was he able to stop the pulsation at the ham,—the attempt was therefore abandoned. The operation was performed by Dr. Dease, at 12 o'clock, on Monday, the 27th February"(a).

What we are, however, anxious to establish is, that *the first successful case of popliteal aneurism treated by compression in these countries, was in the practice of the late Mr. Todd*.

At the meeting of the British Association held at Cork, in 1843, Professor Harrison recorded a case of popliteal aneurism cured by compression, to which, as there are some points of interest connected with it which have not been made public, we shall presently allude, but in which communication he distinctly stated his conviction of the then popular mode of treatment being but the revival of that proposed and successfully carried out by the late Mr. Todd.

At a discussion which took place at the Surgical Society

(a) Medico-Chirurgical Transactions, vol. vii., part 2, pp. 352 and 368; see also John Bell's Principles of Surgery, for an account of the various instruments then in use for arresting hæmorrhage, and compressing arteries.

in January last, on the subject of the cures effected by Messrs. Hutton, Cusack, and Bellingham, Mr. Adams, to whom much credit is due for his steady and determined advocacy of the claims of Mr. Todd, mentioned the case successfully treated by that gentleman, twenty years ago; and we had, in common with many others in this city, a traditional knowledge that the entire merit was due to that distinguished surgeon: and this opinion was confirmed by conversing on the subject with Sir Philip Crampton, Mr. Cusack, Mr. Adams, and others, who had personal recollections of the cases treated by Mr. Todd,—while, on the other hand, it has been asserted that the honour of first advocating “*the principle*” of the operation was due to Dr. Bellingham.

Under these circumstances, we communicated with Dr. Robert Todd, of London, on the subject, and have received from him the interesting document which will be found further on; but before inserting it, we would call the attention of our readers to the late Mr. Todd’s Essay on Aneurism, published in the third volume of the Dublin Hospital Reports, in 1822. In the third case there related (page 121), he resolved to try the effect of pressure on a recent popliteal aneurism, in June, 1820. This case bears so forcibly on many of the points at present under discussion as to the treatment of aneurism by pressure, that we here transcribe a portion of it.

The patient, a man aged 30, was directed to remain in a horizontal posture, was put on low diet, and occasionally bled and purged. “The tumour was so much under the control of pressure on the inguinal portion of the artery,” writes Mr. Todd, “that I was not altogether without hope that, *by diminishing the current of blood in the trunk of the artery, so as to favour the coagulation of the contents of the sac, a cure without operation might be effected*; at all events, it was obvious that by giving time to the collateral arteries to be dilated, the success of the operation would be rendered less uncertain.

“At first it occurred to me that the object I had in view

might be attained by the application of a tourniquet in the ordinary way to the upper part of the thigh; however, the pressure made by the circular strap of that instrument on the small vessels of the limb being an objection to its use, I constructed an apparatus resembling a common truss for femoral hernia, the spring of which was much stronger, and the pad longer, of a more oval form, and more firmly stuffed, than in the truss. The pad of this instrument was furnished with an inner plate of iron, which was connected with the outer iron plate by means of a hinge close to the junction of the outer plate with the spring, and a tourniquet screw passing through this plate had the effect, when turned, of making a greater or lesser degree of pressure with the pad, on the part to which it was applied.

“This instrument was put on like a common truss, the pad being placed in the line of the crural artery, immediately below Poupart’s ligament, and it was effectually kept in its situation by a soft strap of chamois leather, which passed from the spring of the truss behind, on the inner side of the thigh, and buttoned in front on the outer plate of the pad. With this contrivance I possessed full power over the circulation in the femoral artery, at the same time that the collateral arteries suffered little or no compression. The principle of the instrument and the object for which it was employed were explained to and easily comprehended by the patient himself, so that he was enabled to regulate the degree of pressure according to his sensations. After a trial, however, of several weeks, he could not be persuaded that the plan adopted was productive of benefit. *During this period the tumour had obviously diminished, and its contents had acquired a firm consistence*; but the patient complained that the instrument gave him much pain, and that his health and spirits had suffered materially from confinement, rigid abstinence, &c. The operation was accordingly agreed to, and I performed it on the first of September, being two months after his admission into the Hospital.”

From a careful examination of this case, we learn that Mr.

Todd was perfectly acquainted with the *principle* of the operation; and, in truth, although Mr. Todd was not himself aware of the fact, this case, we have every reason to believe, would have been, or even then was, a successful one, and would have perfectly recovered by means of the process then set up in the aneurism without the usual operation of tying the artery being resorted to; for we now know that the establishment of the collateral circulation, the diminution of the tumour, the lessening of the pulsation in it, and its acquiring a firm consistence, are proofs that the cure has been, to use a common expression, "set a going," and that nature will, under the most unfavourable circumstances, complete the cure, after the coagulum has taken place, though some pulsation may still exist in the tumour. This valuable fact was first made known to the profession by Professor Porter, in his article on aneurism in the last Number of this Journal; it has been lately proved in two or three instances; and the case afforded us by Mr. Cusack, to be detailed presently, is conclusive on the point.

The following case has been afforded us by Mr. Adams:

"James Scarlett, æt. 33, formerly a revenue tide-waiter, but then living on a pension, applied to Dr. Duggan, the revenue surgeon, in July, 1824, to be treated for a femoral aneurism of the left leg, situated just two inches below Poupart's ligament. Mr. Hayden and Mr. M'Coy, who were pupils of Dr. Duggan, and also myself, attended this man, and the following particulars of the early history of this case I now adduce, principally from my own note-book, and from information which Mr. Hayden and Mr. M'Coy have severally supplied. In my own case-book I find the following note: 'When James Scarlett first consulted the revenue surgeon, he was twenty-seven years of age, and an acting tide-waiter in the revenue. In the month of March, 1818, he had a popliteal aneurism, for which he never had medical advice, until one day, while he was wrestling with another revenue officer, he fell, and at that moment the popliteal aneurism became diffused.'

“Mortification of the foot set in, and Dr. Duggan, assisted by myself, Mr. Shekleton, Mr. Owen, Dr. Hayden, and Mr. M'Coy, performed amputation of the thigh four inches above the knee. In July 1824, that is, in six years after the amputation, an aneurismal tumour appeared in the femoral artery, about the size of a hen's egg, situated at the distance of two inches below Poupart's ligament, in the femoral artery of the stump.

“There could not be a much more unpromising patient than this: he had already shewn his predisposition to aneurism, and both before and since his limb had been amputated, had led a most intemperate and dissipated life. When the femoral aneurism appeared in the stump, I frequently examined the tumour, which was situated exactly two inches below Poupart's ligament; it had the usual signs of aneurism, and it is to be observed that it had a strong diastolic pulsation; it was gradually increasing when the treatment by compression was resorted to. This case seemed a peculiarly appropriate one for such treatment, and unsuited for any other; the dissipated habits of the man, and the situation of the aneurismal tumour, were circumstances which would have rendered any operation peculiarly hazardous. Dr. Duggan therefore gladly adopted the proposal of Mr. Todd, contained in the Dublin Hospital Reports, and determined to give a trial to the aneurismal truss, which, says Mr. M'Coy, ‘I was directed by Dr. Duggan to apply to the femoral artery, above the aneurismal tumour. Mr. Todd had the kindness to lend his own apparatus, and I put it on.’ Mr. M'Coy tightened the screw until all pulsation ceased. Next day, he adds, ‘I found him easy, and there was no return of pulsation. The tumour in three weeks became solid, and diminished in size, and he was perfectly cured.’

“The man lived twenty years after the cure of the aneurism, and suffering much from the effects of the idle, dissipated mode of life he had adopted. During this period he lived occasionally with his brother, who resides near me, and I had frequent opportunities of seeing him; he complained occasionally of rheumatism in the right hip joint, as if it had suffered from

too much weight being thrown on it, in consequence of the left leg being amputated. In the year 1842 he was a patient of mine in the Richmond Hospital, under treatment for rheumatism. I then directed the attention of the class to his case, and related the remarkable facts which I have now detailed.

“Since he was discharged from the hospital, I seldom have seen him, but I learned from his brother, that he died on the 17th September, 1844. He also told me that his death was caused by his intemperate habits; and that, therefore, he never had medical advice for him. I had no opportunity of knowing his condition for the last year of his life, or of seeking or obtaining leave to make a *post mortem* examination, which I regret.”

The instrument used by Mr. Todd is figured in the Dublin Hospital Reports (vol. ii. p. 123); but Mr. Cusack informs us that Mr. Todd, with whom he frequently conversed upon the subject, subsequently contrived another apparatus, consisting of a padded splint, into which the thigh fitted, and to which was attached a hoop, which passed over the limb, whilst to this latter was affixed a screw-stem, connected with a pad to press upon the vessel. With this instrument it has been reported that Mr. Todd completely cured a case of popliteal aneurism; but although the fact was testified to by Sir Philip Crampton, Mr. Cusack, Mr. Adams in particular, Dr. Robert Smith, and Dr. Williams, yet as the case had not been published, Mr. Todd's merits do not seem to us to have been fully admitted, although it is but just to say, that no one, in print at least, claimed to himself the honour of the discovery.

The following document is, however, conclusive: it was originally intended for publication in the Dublin Hospital Reports, of which the late Mr. Todd was an editor, along with Drs. Colles and Cheyne; but Mr. Todd's death very shortly after the case occurred, and before the appearance of the fourth volume of that work, caused the delay which has since taken place. It remained in the hands of the late Professor Colles till a few years ago, when it was returned to Dr. Robert Todd, to whom we are now indebted for it.

“Patrick Murtagh, aged 36, a strong athletic man, of rather intemperate habits, by occupation a labourer in a brewery, was admitted into the Richmond Surgical Hospital on the 5th of September, 1825, for an aneurism in the right ham. He does not attribute its formation to any particular cause; says he never received any hurt in the limb, but that he is exposed to much hardship and labour, and is constantly employed carrying barrels of beer up very steep steps.

“The aneurism is about the size of a turkey’s egg; it lies across the popliteal artery, and extends laterally under the ham-string tendons, so that, by looking at the front of the thigh, it can be seen pulsating on either side. Its contents seem to be fluid, as, by making pressure on the sac, its size can be much diminished. The pulsation is easily commanded by pressure on the femoral artery below Poupart’s ligament.

“He states, that about fourteen days previous to his admission he perceived a stiffness in the ham after walking a short distance into the country; on returning home he examined the part, and could perceive nothing but a little puffing in the skin; conceiving he had strained the joint, he paid no attention to it, and continued working as usual for some days, till the stiffness increased so much as to cause great inconvenience in moving the limb. At this time he perceived a small tumour in the ham, which, when pressed on, gave him pain, and throbbled violently. Still thinking it proceeded from a strain, he applied stupes and soap liniment; but perceiving its size increasing rapidly, he became uneasy, and consulted an apothecary, who immediately directed him to the hospital.

“On his admission he was ordered to keep his bed, and have a dose of the purging mixture of the hospital.

“Thursday, 8th. Complains of headach; tongue white; pulse, 100. V. S. ad $\frac{3}{4}$ xii. Mist. purgans.

“17th. The tourniquet truss was applied at 12 o’clock, which perfectly commanded the pulsation of the tumour, but it returned in two hours after the application of the truss;

in the evening it was screwed tighter; pulsation ceased but for one hour.

“18th. The instrument not appearing to fit, was removed, and sent to be altered.

“21st. The instrument was again applied (it appeared to answer perfectly), and was kept on till 8 o'clock, P.M., when it was removed, as the man could no longer bear the pressure; the pulsation in the sac less violent.

“Thursday, 22nd. The instrument was applied at twelve o'clock, and continued till Saturday, 24th. The pulsation of the tumour has entirely ceased. Pressure was applied on the tumour by graduated compresses and a roller, wetted in a solution of muriate of ammonia.

“25th. The instrument was not applied yesterday (through mistake); however, there is no pulsation in the tumour. It was applied on the morning of the 25th, and remained on till Tuesday, 27th, when it was removed entirely.

“28th. No pulsation; tumour is diminishing.”

This then was the second successful case during the lifetime of Mr. Todd. It was transcribed from the note-book of Dr. Connor, and is in the handwriting of Mr. Nunn, to whom we presented it, and who has furnished us with the following testimony:

“6, *Dawson-street, June 29th, 1846.*

“The report of the case of Patrick Murtagh, who was a patient in the Richmond Surgical Hospital, in the year 1825, under the care of the late Mr. Todd, is in my handwriting.

“I perfectly recollect this case, which occurred during the time I was an apprentice at the hospital; the cure was complete and permanent. I have latterly lost sight of this patient, but for some years I saw him frequently: the last time I saw him he was quite free from any trace of his former disease.

“R. L. NUNN.”

And on the 1st of July, Dr. Connor of Battersea writes:

“ I have a perfect recollection of the man, and of his calling at the Richmond Hospital three or four months after he had been discharged, and of his being exhibited to the class, and considered by all who saw him as being perfectly cured. No trace of the aneurism remained; but there was a small tumour in the ham unaffected by pulsation, and the pulsation in the tibial arteries was undiminished.”

Professor Todd died in March, 1826, and so the matter rested, as far as any practical result was concerned, till *revived* by Mr. Hutton, in 1842. And here we feel it our duty to say, that but for this successful case of Mr. Hutton's, and those following immediately upon it, under the care of Messrs. Cusack, Bellingham, and Harrison, it is more than probable that the treatment of aneurism by compression would now be in the same state it was six years ago. Mr. Cusack informs us that shortly after the cure of Mr. Todd's case, he was lent the instrument employed, and tried it on a case in Steevens' Hospital, in the early part of 1826, but as the subject of it was very impatient and bore the pressure badly, he performed the usual operation, and the man recovered.

We now arrive at the year 1830, when Sir Philip Cramp-ton again took up the matter, although in a somewhat different light; he has furnished us with the following communication:

“ *Merrion-square, July 4, 1846.*

“ DEAR SIR,—Agreeably to your desire, I send you my notes (imperfect as they are) of a case of femoral aneurism, which was treated by *immediate* compression of the artery at the groin, in the Royal Military Infirmary, Phoenix-park.

“ Corporal Coulson, aged thirty-six, was admitted into the Infirmary in the autumn of 1830, with a large femoral aneurism, which occupied the upper third of the thigh; the greater part of the contents of the aneurismal sac were fluid; there was but little pain in the limb, but he complained of severe pain in the chest, shooting back to the shoulder-blade; on ex-

amination with the stethoscope, a very suspicious *bruit* was heard at the back of the thorax, rendering the existence of aneurism of the aorta but too probable.

“ In such a case, ligature of the external iliac was not to be thought of, as the co-existence of thoracic with femoral aneurism too clearly proved a condition of the arterial system, the most unfavourable that could be imagined for the operation. I determined, therefore, to try if the coagulation of the blood in the aneurismal sac could be effected by compressing the femoral artery at the point where it passes over the pubis. The constant failure which had attended the attempts to compress the femoral artery above the aneurism, by means of tourniquets of various construction, even in the hands of the most eminent surgeons, was anything but encouraging; relying, however, on the experiments of Hunter and Freer(*a*), and those which I have detailed in the *Medico-Chirurgical Transactions*(*b*), which seem to establish that ‘a very moderate degree of irritation applied to the external coat of an artery, aided by a sufficient degree of compression to bring its internal surfaces into contact, is sufficient to effect the obliteration of its canal,’ I determined to try the effect of the *immediate* compression of the artery, by means of a compress, without the aid of a ligature. An apparatus was accordingly constructed, by means of which pressure, regulated by a screw, was brought to bear on the artery, which was previously laid bare to the extent of about half an inch(*c*).

“ The operation was performed in the presence of Professor Colles, Mr. Cusack, and several other surgeons, civil and military. The immediate effect of the compression of the artery was to stop the pulsation in the aneurism and to diminish its

(*a*) *Observations on Aneurisms*, p. 14. (*b*) *Med.-Chirurg. Trans.* vol. xvi., p. 345.

(*c*) This apparatus, improved by Mr. Daly, was successfully applied in the first case of popliteal aneurism treated by Mr. Cusack in 1843; it is figured and described by Dr. Fleming, in the *Dublin Medical Press* of the 3rd of May, 1843.

bulk; pulsation, however, soon returned, but was easily commanded. The resident staff assistant-surgeon, aided by the hospital sergeants, took charge of the case, increasing the pressure on the artery when the pulsation in the aneurism returned, and relaxing it when the pain became intolerable. In this way the current of blood through the aneurismal sac was occasionally arrested completely, and at all times was materially obstructed. At the expiration of forty hours the pain from the pressure became so severe that it was thought advisable to remove the apparatus and to substitute a firm linen compress about two inches thick, which was secured by means of a tightly applied spica bandage; this degree of pressure was attended with no pain, but it did not completely suppress the pulsation. The bandage was tightened from time to time, and from day to day the pulsation became less distinct; and when I examined the man after an interval of three days, that is to say, six days after the operation had been performed, I found, to my great surprise and delight, that all pulsation in the sac had ceased, and that the aneurism had lost nearly one-half of its bulk. The bandage and compress were worn (as a measure of precaution) for a week longer, and were then removed altogether. Things went on in this satisfactory state, when, on the morning of the fifteenth or sixteenth day, the soldier who slept in the neighbouring bed was awoken by 'a loud gurgling noise' which proceeded from the man who had been operated on; he got up and raised him in the bed, which was deluged with blood, but he was quite dead,—the thoracic aneurism had burst into the trachea.

“ On examining the parts concerned in the femoral aneurism, it was found that the artery was pervious as far as the sac, which was filled with a soft coagulum of an intensely dark colour generally, but of a bright arterial colour towards the centre, and here the coagulum seemed to be of very recent formation; a portion of it about half an inch in length passed into the lower or distal part of the artery.

“ The remarkable success which of late has attended the treatment of popliteal aneurism by the ‘ *mediate compression*’ of the femoral artery above the sac, entitles this operation to be considered as a means of cure, which, if not universally, is at least generally applicable to such cases. There are cases, however, of external aneurism,—the axillary and carotid, for example,—in which this mode of treatment cannot be employed, for it is well-known that a degree of mediate compression, which would be sufficient to arrest the current of blood through the subclavian artery, could not be endured for ten minutes, and the same is true of the common carotid. I am by no means so certain, however, that *immediate* compression, if applied to the subclavian artery at the point where it passes over the first rib, and effected in the manner described in the following case, might not be employed with success.

“ A dragoon, about 35 years of age, and apparently of a good constitution, suffered from popliteal aneurism of six months’ standing; he was received into the Royal Military Infirmary in the summer of 1830, and, after the usual course of preparation, the artery was tied with a single silk ligature at the usual place, in the presence of Mr. Cusack, Professor Porter, and several other surgeons. Several cases of secondary hæmorrhage after operations for aneurism having occurred in the course of the year, in consequence of the giving way of the artery at the place of the ligature (*a*), I determined to try how far such an occurrence might be prevented by drawing the noose of the ligature no tighter than was necessary to arrest the current of the blood without dividing the inner and middle coats of the artery; the ligature was accordingly closed slowly, while one of the assistants placed his hand on the aneurism. The moment he announced that “ the pulsation had ceased,” the noose was secured by a second knot. The man expressed no pain during the slow closure of the ligature. About an

(*a*) See Guattani de Wocamaslaus on Aneurismal Surgery, *Med-Chirurg. Trans.* vol. vi. p. 350.

hour after the operation, an obscure pulsation could be detected in the aneurism: it was attended with this remarkable circumstance, that when the horizontal posture was observed the pulsation ceased; but when the body was made to form a right angle with the lower limbs it immediately returned, a circumstance easily accounted for by the different degrees of tension to which the artery was subjected, in the different angles formed by the pelvis on the thighs, in the recumbent and sitting postures respectively. Obscure pulsation continued to be felt in the aneurism for ten days; after the expiration of this time it ceased altogether. On the sixteenth day the ligature, which hung loosely from the wound, was removed, and within an hour afterwards there was a smart arterial hæmorrhage from the hole which had been occupied by the ligature. On arriving at the hospital, I found that the resident surgeon had stopt the hæmorrhage, by pressing his finger on the bleeding orifice. I immediately formed a roster, consisting of the hospital sergeant and six men, selected by him from the patients in the ward; they were instructed as to the manner which the compression was to be applied; and the resident surgeon undertook, at each relief of the guard, to press the femoral artery against the pubis, until the compression at the wound had been perfectly adjusted; an efficient pressure was, by this means, maintained for upwards of forty hours. It was then gradually withdrawn. The bleeding never returned, and the man returned to his duty in a month.

“I cannot conclude this very hasty and imperfect notice, without expressing my strong conviction that manual pressure may, under due regulation, be advantageously substituted in many cases, not only of wounded artery, but of aneurism, for the ligature or for the best constructed instruments for effecting mediate compression.

“I remain, dear Sir,

“Your’s faithfully,

“PHILIP CRAMPTON.”

Here we beg leave to remark that the practice of tying arteries for secondary hamorrhage has been for many years on the wane in this city. While resident in Steevens' Hospital we happened to be standing in the ward on three different occasions when the brachial artery sprung, after an operation, at the bend of the elbow. The practice taught in the hospital was immediately had recourse to: the dressings were removed from the part, and pressure made with the finger directly on the bleeding vessel; a corps of attendants was then organized, and immediate compression upon the artery kept up by the finger, with the intervention of a small piece of prepared sponge, for the next twenty-four or thirty-six hours, and with complete success. Two of these cases were under the care of Mr. Cusack, and one under the late Professor Colles. Many other similar instances will be remembered by the former students of Steevens' Hospital.

The instruments used by Messrs. Todd, Crampton, Hutton, Cusack, and Bellingham, are now pretty well known to the profession, and it is not the object of this paper to describe them, or the many other ingenious contrivances and improvements by various members of the Profession, Mr. L'Estrange in particular, as well as those adapted by the instrument-makers, Mr. Read and Mr. Milliken. All these, however, were more or less defective, *inasmuch as they applied the pressure on but one point*; and few persons will be found who have patience and fortitude enough to bear it in this way for a sufficient length of time to cause such a diminution in the calibre of the vessel as will permit of the formation of a clot in the aneurismal sac. This difficulty was, however, obviated by a patient treated by Professor Harrison, who contrived for himself an apparatus, by which the pressure could be *applied on several points in the course of the artery*, and so relieve the distress and pain (which is, in many instances, scarcely supportable), by altering the pressure from one point to another in succession, during the process of cure. Professor Harrison gave a history of this case at

the meeting of the British Association, held at Cork, in August 1843: some brief notices of which appeared in the local newspapers, and in the *Athenaeum*, at the time; but as the case has never yet been properly recorded, and as there are some points in its history of great practical importance, we here insert an abridgment of it, from the manuscript kindly afforded us by Professor Harrison.

Robert Hoey, aged twenty-nine, a carpenter, of great intelligence, and of temperate and regular habits, was admitted into Jervis-street Hospital, with popliteal aneurism of about a month's standing, on the 9th of May, 1843. It being deemed a proper case in which to try pressure, the usual instrument then in use, consisting of a padded splint, with a circular hoop, holding the stem of a pad which compressed the vessel where it passed over the ramus of the pubis, was applied. The pain experienced from this, when tightened so as to stop the pulsation, was so great, that he was unable to bear it for more than an hour at a time. Several ineffectual attempts were made to keep up the pressure by means of this apparatus, but it never could be endured for more than the period just specified, when it was loosened on account of the pain, and after a few minutes re-applied.

On the 12th, it is reported that the tumour was somewhat harder and smaller than on admission, but no sensible effect had been produced on the pulsation. After this he took small doses of the tincture of digitalis morning and evening, and was kept on very low regimen.

On the 13th some œdema was visible on the front of the leg; the pressure continued as usual at intervals; he complained greatly, not only of the pressure of the pad upon the artery, but of the inconvenience of the posterior splint. Matters went on in this way till the 18th, when, a slight abrasion being perceived on the point of pressure in the groin, the instrument was removed, and applied about four inches below the pubis.

During the next four days he complained greatly of loss of rest, which even an opiate failed to procure.

On the 22nd a swelling presented itself on the outside of the knee, about the size of a nutmeg, painful to the touch, and evidently communicating with the aneurismal sac.

At this period the sudden increase of the tumour, the great loss of rest, the inability of bearing the pressure, the irritability, and the evident sinking of the patient's health, was such as induced Dr. Harrison, in consultation with the other surgeons of the hospital, to determine on the performance of the usual operation. The next day, however, the patient was better in every respect, and for the time it was abandoned.

On the 23rd the instrument was removed to its original position, but little progress was made in arresting the pulsation or diminishing the tumour; the pain was complained of as intolerable; he was unable to bear the instrument pressed home for more than one hour at a time; and was exceedingly restless, irritable, and feverish. The instrument was completely removed on the 27th, and that of Mr. L'Estrange applied on the 29th; and thus the treatment was continued during the entire month of June. Several instruments were tried, but none of them could be borne for a sufficient length of time to make any material or permanent change in the aneurism. On the 4th of July the patient was obliged to leave the hospital, owing to the death of a relative, but was allowed to take the instrument with him, with the intent and mode of application of which he was perfectly familiar.

On his return home, having reflected upon the cause of failure, which he naturally attributed to his having being unable to bear the pressure on the artery at the pubis, he invented, and immediately applied, a very simple instrument, on the principle of the carpenter's clamp, consisting of a small, well-padded iron splint, four inches by three, connected with a steel bow, in the front of which worked a screw, furnished with

a pad, with which he could compress the artery in any part of its course on the anterior or inner part of the thigh. He at once applied two of these, the upper compressing the vessel about three inches below Poupart's ligament, the lower about the middle of the thigh, but each of them capable of being shifted occasionally, as the point of pressure became tender. With these he completely commanded the circulation for upwards of twenty-four hours. As soon as the upper caused much pain, after an hour or so, he tightened the lower one, and relaxed that above, and so alternated from one to another, always making sure that the circulation was fully commanded, by one instrument being screwed down, before he loosened the other. He had thus the satisfaction of completely effecting his own cure; but, fearful of any return, he wore the clamps even outside his trousers for a considerable time afterwards.

We examined this man on the 1st of last month, along with Sir Philip Crampton, and we can state that the cure remains most perfect; there is still some fulness in the ham, but he follows his occupation, and walks about as well as ever, and does not complain of any sensation in that limb more than in the other. Although this man owes much to Professor Harrison, who commenced his treatment and cure, he certainly achieved for himself, personally, a great good, and for science a very valuable improvement. The weight used by Dr. Bellingham is somewhat to the same effect, and appears to us a very meritorious invention, though not equally effective with the clamp.

The following case has been placed in our hands by Mr. Cusack, who treated it a few months ago in Steevens' Hospital. The reports from which we extract have been drawn up by Dr. Molloy himself, and by Mr. Harris, who had charge of the case while in the hospital:—

W. H. Molloy, M.D., aged thirty-three, a practitioner in the county of Donegal, of strong, athletic make, sallow complexion, dark hair and eyes, energetic in character, but impatient of pain. Has been accustomed to take a great deal of horse

exercise in the performance of his duties, in an extensive district; has enjoyed good health, with the exception of periodic attacks of rheumatism, several of which terminated in effusion into one or both knee joints. On more than one occasion a tumour, the size of an egg, was perceived in each popliteal space after a rheumatic attack: it was elastic, free from pulsation, and always disappeared as the rheumatic effusion went off(*a.*)

On the 9th of February, 1846, he was seized with pain in the right knee, which he supposed to be the forerunner of one of his usual rheumatic attacks; but it was accompanied with coldness of the limb, and numbness about the great toe. On the 10th all these symptoms were increased; the superficial veins had also become greatly distended, and the foot had assumed a livid colour. 11th, a tumour the size of a small orange, soft, compressible, circumscribed, and pulsating synchronously with the heart, was discovered in the right popliteal space; its pulsation could be arrested by pressure on the femoral artery in the groin. The true nature of the case was then manifest; and on the 27th of the month, Dr. Molloy placed himself under the care of Mr. Cusack, who had him provided with an apartment in Steevens' Hospital, in order that he might enjoy the advantages of the continued watching and attention so necessary in the subsequent treatment of any operation, and which can only be derived from the medical staff of a large hospital. It was deemed advisable to treat this case by pressure on the femoral artery, previous to the application of which, complete rest was enjoined, and he was put upon the use of tincture of digitalis and laurel water.

The hospital report of this date, after describing the tumour, states that when the limb was extended the size of the

(*a.*) Mr. Adams has suggested to us that these popliteal swellings arose from the effusion in the joints spreading into sacs of the synovial membrane which protrude into that region, and have been occasionally mistaken for aneurism. See Mr. Adams's article on the Abnormal Condition of the Knee Joints in the *Cyclopædia of Anatomy and Physiology*.

tumour greatly increased, but that on flexion it became much smaller, and that the pulsation in the tumour was strong, but devoid of *fremitus* and unaccompanied by a *bruit*. There was no appreciable difference in the temperature of the limbs, nor any œdema present, and the pulsation in both tibial arteries was quite perceptible. The flexion power of the limb was so much impaired that he could with great difficulty ascend the stairs. The heart's impulse and sounds were normal.

On the second of March pressure with the clamp invented by Hoey, Dr. Harrison's patient, was first applied upon the femoral artery, at the junction of the upper and middle third of the thigh, so as to diminish without entirely impeding the current of blood through the artery, or causing the pulsation in the tumour to cease completely. He was not able to endure even this comparatively moderate pressure for more than ten minutes at a time on any one point of the course of the artery. Other instruments were tried next day but with the like effect. He suffered much, especially during the night from continual starting of the limb. On the 7th it is reported that he has borne the pressure very badly; the foot and leg have become œdematous, lessened in temperature, and painful. Pressure on the artery where it enters the Hunterian canal produces great pain and numbness down the limb, and can only be borne for a very short time. A comparatively slight amount of pressure applied upon the artery where it passes over the ramus of the pubis, completely controls the pulsation of the tumour, but owing to the presence of some enlarged glands in the groin, it cannot be long maintained. The startings in the limb continue; no material alteration in the tumour. On the 9th a circular instrument, consisting of a posterior pad, attached to a hoop, which went round the limb, on the front of which a sliding screw-pad was attached(*a*), was

(*a*) This instrument has been since very much improved by Mr. Read of Parliament-street, who made the screw stem to work through a ball and socket joint, by which means the pad is more accurately adjusted and kept more steadily in its place. He has also constructed a very ingenious compressing apparatus, which fits round the

applied, and this he bore for upwards of an hour with much greater ease than the former one, but at the end of that time it was obliged to be taken off in consequence of its producing both congestion and œdema. Late in the evening of that day it was re-applied and kept on for more than four hours; with this instrument he was able to turn on his side, which he was not capable of doing before, and he slept with more comfort than he had done since the commencement of his treatment.

On the 13th, the instrument was pressed down so as to stop all pulsation in the tumour, but this produced so much pain that it could only be borne for about twenty-five minutes at a time in any one position.

15th. There has not been much alteration in the tumour since last report, except a slight diminution in size, and a thickening of its walls. He still complains of the numbness round the knee: the œdema of the foot and leg have increased, and he now experiences a sensation of oppression in the region of the heart; he sleeps, and bears the instrument, however, much better than before. The artificial heat has been kept to the limb; and the tincture of digitalis continued.

22nd. He has become more reconciled to the instrument, and can now bear the pressure, especially below Poupart's ligament, for a considerable time. The tumour is in much the same state. Ice to be applied to it. 25th. The tumour has lessened in size, and become somewhat harder; two small vessels running parallel to each other can be detected pulsating on its surface. On this circumstance, writes Dr. Molloy, in his report, "I am inclined to think that the pulsation of these vessels might be mistaken for that in the tumour, which was perceptible after the screw had been pressed home, and the pulsation in the main artery had been arrested."

27th. Tumour and all the other symptoms as before, but on the removal of the instrument the pulsation returns.

pelvis, and has attached to it a moveable bow, furnished with a screw pad for applying the pressure on the groin, and capable of being adjusted to either side.

30th. The tumour has become smaller and harder than when its size was last noted, but its pulsation is still quite evident. The muscles of the thigh have become greatly reduced in size, and the slightest motion now displaces the pads. In order to examine the tumour, it is necessary to bury the fingers deep into the popliteal space. Since the last report the œdema has disappeared, and the starting has lessened. His general health is not so good as on admission, and he has, therefore, been allowed a more liberal diet, but the use of the digitalis has been continued. It was now determined to keep up uninterrupted pressure for another week, and after that, to relinquish it, even if the pulsation in the tumour had not completely subsided; moderate pressure was also applied directly over the tumour.

April 5th. Pressure has been kept up steadily, with a variety of instruments, since last report; but, except for a short time, they have not been pressed sufficiently tight completely to arrest pulsation in the tumour. The loss of rest is still greatly complained of; appetite very bad. 8th. Pressure almost insupportable; strength diminishing.

14th. Pressure discontinued altogether; a compress of sponge applied to the tumour, and retained in position by means of a bandage applied moderately tight over the entire limb. Allowed to sit up. 16th. It is found that the tumour has suffered a marked reduction in size during the past week, and has also become more solid; the pulsation, however, can still be detected in it. 24th. Left the hospital for Kingstown, where he remained to recruit his general health for the next fortnight, the tumour still continuing small and hard, but pulsating.

“On May the 12th,” writes Dr. Molloy, “I left Kingstown for the country, where I commenced walking about as usual, although lame, and my knee stiff and painful, up to the 22nd, when I ventured on horseback to pay a professional visit. During my ride it was with difficulty I maintained my seat, as the animal I rode was remarkably spirited. On making a sudden exertion, the knee, and particularly the

tumour, immediately became very painful, and the latter felt as if it had been stretched or torn. On my return home I removed the roller and compress, and found the tumour very tender to the touch, and increased in size, and I experienced a sharp lancinating pain shooting upwards in the course of the artery. At eleven o'clock that night the pain had become so great that I was obliged to take a full opiate, which procured me immediate rest. On awakening at five o'clock the next morning, I found the leg flexed on the thigh; the leg and foot cold, but the knee hot, and the collateral circulation fast establishing itself round the joint; the tumour hard and painful, *but perfectly free from all pulsation*. I remained perfectly quiet for three weeks, when the limb, which had been greatly wasted, and remained cold up to this point, began to increase in size and temperature. I am now, June the 27th, able to walk slowly for a mile or two without inconvenience, but when the pace is quickened, there is still pain of the leg and ankle, and stiffness of the knee. The tumour is much smaller, and can barely be felt deep in the popliteal space; there is no pulsation evident in either of the tibial arteries; motion of the limb much freer; temperature of the foot gradually increasing; general health very good. The greatest inconvenience which I experience is a disagreeable numbness along the inner side of the knee, leg, and foot, probably caused by some injury which the saphena nerve incurred during the process of applying the pressure."

Mr. Todd, in his essay in the Hospital Reports, has recorded a second case of popliteal aneurism, treated in 1820, in which he also applied pressure, together with depletion, even to a much greater extent; but he says the man "became impatient, and was unwilling to submit to a continuance of that rigid discipline which it had been thought expedient to adopt," so the artery was tied forty-five days after his admission into the Hospital(a).

(a) The Dublin Hospital Reports, vol. iii., p. 133.

In conclusion, we beg to present our readers with a tabulated arrangement of all the cases of femoral and popliteal aneurisms which have been treated by pressure on the femoral artery in Great Britain and Ireland.

No.	Date.	Surgeon.	Locality.	Description of Aneurism.	Age of Patient.	Result.
1	1820	Mr. Todd,	Dublin,	Popliteal,	30	Fem. art. tied.
2	"	"	"	"	27	"
3	1825	"	"	"	36	Cured.
4	1824	Mr. Duggan,	"	Femoral,	33	"
5	1826	Mr. Cusack,	"	Popliteal,	—	Fem. art. tied.
6	1843	"	"	"	55	Cured.
7	1844	"	"	"	26	"
8	1846	"	"	"	33	"
9	1830	Sir P. Crampton,	"	Femoral,	36	"
10	1842	Mr. Hutton,	"	Popliteal,	30	"
11	1843	Dr. Bellingham,	"	"	32	"
12	1844	"	"	Femoral,	35	"
13	1846	"	"	Popliteal,	40	Doubtful.
14	1843	Mr. Liston,	London,	Femoral,	30	Cured.
15	1844	"	"	"	53	"
16	1843	Dr. Harrison,	Dublin,	Popliteal,	29	"
17	1844	Mr. Kirby,	"	"	28	"
18	"	Mr. Allen,	Haslar Hospl.	"	32	"
19	"	Mr. Greatrex,	London,	"	27	"
20	"	Mr. Porter,	Dublin,	"	29	"
21	1845	"	"	"	—	"
22	1844	Mr. Jolley,	Torbay,	"	28	"
23	1843	Mr. Harrison,	Bristol,	"	42	Fem. art. tied.
24	1845	Mr. Dartnell,	Chatham,	"	38	Cured.
25	1846	Mr. Mackern,	Litherland,	Femoral,	30	"
26	1845	Mr. Storks,	London,	Popliteal,	32	"
27	1846	"	"	"	24	"
28	1845	Mr. O'Farrell,	Dublin,	"	32	"
29	1846	"	"	"	37	"

From this table it would appear, that twenty-nine cases of aneurism—six femoral, and twenty-three popliteal—have been treated by pressure upon the artery leading to the sac; of which number, nineteen occurred in Dublin; and that in four, the femoral artery was tied, chiefly from want of confidence in pressure, on the part of either surgeon or patient, and that in twenty-five instances this mode of treatment was successful. Mr. Todd's three cases, Sir Philip Crampton's case, Mr. Duggan's case, Mr. Cusack's case in 1826, and also that of Dr. Molloy, and Mr. O'Ferrall's two cases, have not been before introduced into any of the notices or tables of this operation which have

appeared in the periodicals. Dr. Bellingham's first two cases occurred in the same individual; his third I have, with his own permission, marked doubtful, because the patient died of erysipelas during the process of cure,—the subject of it was originally under the care of Mr Cusack. Mr. O'Ferrall's cases will appear at length in our November number.

Sir P. Crampton's second case has not been classed in the foregoing table, inasmuch as it was one of accidental hæmorrhage in which the pressure was resorted to from unavoidable necessity, and not originally employed as a means of cure; and Mr. Adrian's case, mentioned in the *Medico-Chirurgical Transactions*, has not been sufficiently detailed, to entitle its being placed in the foregoing category. The subject of Mr. Cusack's third case died suddenly of disease of the heart before he left the hospital—this, however, in no wise militates against the applicability of the treatment, even in that individual case. The man died *cured* of his aneurism, and the subsequent examination of the parts concerned in that disease was of vast importance in the explanation of the mode of cure. The propriety of applying pressure in this case has been questioned, and, we think, most unjustly. Had the usual operation of tying the artery been resorted to—an operation periling life—in such a case we do think the surgeon would be reprehensible. But it is well known that many persons with diseased hearts and diseased arterial systems, will live for years after the supervention of such; and are these persons to be allowed to die of the bursting of an external aneurism, when a perfectly bloodless procedure (for it is not an operation), and one, as far as we yet know, unaccompanied with any risk; together with rest; the use of the tincture of digitalis; a low regimen; and the preservation of the horizontal position for a fortnight or three weeks, may prolong their lives for years?

In ten instances, local pressure on the aneurismal tumour by means of pads and bandages was used in addition to the pressure by the instrument. We have omitted the column for the

“time occupied in the treatment before *bruit* and pulsation had ceased,” inserted in Mr. Storks’ table, because no fair standard can be at present established, nor any practical deduction drawn from it. The time has varied from ninety-one days to five; but an examination of the published cases, and even of some of those detailed in this paper, will shew how irregularly the pressure was applied; and it is quite apparent that its removal at a *particular time*, even for a few minutes, and allowing the flow of blood through the sac again to take place, will undo all that had been before effected. It is, moreover, very possible that in many instances the pressure has been continued far longer than was necessary. Should we not first apply a very moderate degree of pressure, so as to accustom the patient to bear it with comfort, and then gradually increase it to a particular point, when it is possible that the artery may have become accustomed to it, and the collateral circulation become increased; then put it down firmly for a few hours, and the cure may be so far accomplished that further pressure may be unnecessary? We would suggest to those engaged in the treatment of aneurisms by compression, or in the manufacture of instruments to effect that purpose, that an apparatus made sufficiently light and small, so as not to prevent the patient turning in bed, and provided with a number of pads (three at the least), adapted along the course of the artery, so that several points of pressure could be made in succession, would be a great desideratum.

Although we are but in the infancy of this very great improvement, yet from the foregoing observations, as well as what has been already published by others on the subject, the following conclusions may, we think, be drawn:

I. That numerous attempts have been made, during the present century, to cure external aneurisms, popliteal in particular, by means of pressure upon the artery between the sac, and the centre of the circulation; and that various instruments have been contrived to effect this purpose.

II. That by such means, it is more than probable that occasional cures were made.

III. That popliteal aneurism seems the most favorable for the application of pressure.

IV. That to Mr. Todd is due the merit of having first fairly tried, and successfully applied the pressure treatment of popliteal aneurism in these kingdoms.

V. That no permanent position was established for the treatment of aneurism by compression, until the cases treated by Mr. Hutton, Mr. Cusack, and Dr. Bellingham, were brought before the profession at the Surgical Society of Ireland, in 1843.

VI. That up to this period the instruments made to effect the compression were defective, inasmuch as they applied the pressure on but one point.

VII. That the improvement introduced by Dr. Harrison's patient, Hoey, of applying a number of clamps along the course of the artery, has done much to remedy this defect, and has afforded surgeons a very valuable hint on the subject.

VIII. That from the history of cases recorded by Professor Porter and Mr. Cusack, it would appear that it is not necessary, completely, to arrest the pulsation in the tumour, by pressure on the artery, in order to produce a cure.

IX. That this cure is effected by means of a coagulum formed in the sac, either by lessening the current of blood flowing through the artery, or by some peculiar power of coagulation imparted to the blood, aided by the contraction of the sac.

X. That in order to effect this coagulation, Galvanism has been employed, and appears to hold out hopes of success.

XI. That from dissections we learn, that it is not necessary to obliterate the artery between the point of pressure and the sac, in order to produce this coagulum, and effect a cure.

XII. That pressure has been tried, and produced coagulation, even when applied to the distal side of the sac.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

1. *Report of the Metropolitan Commissioners in Lunacy to the Lord Chancellor.* (Presented to both Houses of Parliament, 1844).
2. *Statistical Tables, prepared by the Metropolitan Commissioners in Lunacy.* (Ordered by the House of Commons to be printed, 8th August, 1844).
3. *Report of the Inspector-General on the district, local, and private Lunatic Asylums in Ireland, 1844, with Appendices.* (Presented to both Houses of Parliament, by command of Her Majesty, 1845).
4. *Fifteenth Annual Report of the Belfast District Asylum for the Insane Poor.* March, 1845.
5. *Report of the Directors of the Montrose Lunatic Asylum, Infirmary, and Dispensary, for the Year ending 2nd June, 1845.*
6. *Twenty-fifth Annual Report of the Directors of the Dundee Royal Asylum for Lunatics, 1845.*
8. *An Essay on the use of Narcotics and other remedial Agents calculated to produce Sleep in the Treatment of Insanity.* For which the Author obtained the Lord Chancellor's Prize in Ireland, awarded by the President and Fellows of the King and Queen's College of Physicians. By JOSEPH W. WILLIAMS, M. D. London, 1845.

THE above works have been lying on our table for many months, having been compelled to yield precedence to others of a more strictly medical character. It was our intention to have considered them in connexion with a number of publications of the same kind which have recently issued from the American, French, and German press; but as circumstances will prevent us, for some time to come, from being able to devote to these latter a sufficient degree of attention, we cannot

any longer delay to lay before our readers a condensed view of the very valuable and interesting information contained in the volumes before us. We have delayed accomplishing this our task, until the very last moment, in hopes of being able to obtain the Report of the Inspector-General for 1845; but that document either has not yet appeared, or there has been great and unusual delay in forwarding it to the public libraries, since we have not been able to procure a copy.

"I am inclined to think," says Dr. Connolly, in his able Letter on the Lunatic Asylums of Paris, "that both the Continental and Irish asylums are better managed than the asylums of England, and that there is consequently a prospect of more permanent and steady improvement in them." The same remark has been made by nearly all foreigners who have visited this country; and by none has it been expressed more decidedly than by our friend, M. Falret, of La Salpêtrière, who, a few years ago, was sent by the French government to inspect the asylums for the insane in Great Britain and Ireland. The cause of this superiority of our public hospitals is, no doubt, the greater care bestowed on their management, and the more conscientious discharge of their duties as guardians of the afflicted poor by our country gentlemen. To the local committees, no doubt, the chief praise is due; but the interest which has long been taken by different members of the Irish government in ameliorating the condition of the insane, has contributed, we feel confident, in no small degree, to the same good result, by exciting all subordinate authorities to a degree of vigilance and activity which could not have been expected, had apathy and indifference been found to prevail at head-quarters.

The first of our rulers whom we know to have interested himself in these matters, was the Marquis of Normanby. His Lordship, during the whole period of his viceroyalty, continued to pay frequent visits to Swift's noble and admirably-managed hospital for the insane; and by conversing familiarly with the patients, soothing their feelings, excited by real or imaginary ills, and evidently taking an interest in their cases, did much to alleviate their unhappy condition. Man, in all circumstances, but especially when labouring under affliction, is more deeply and permanently affected by unmerited kindness, than by any harshness and severity that can be employed; and the gratitude with which we have heard the patients at Swift's telling of the bundles of materials for patch-work, the piles of music, and the baskets of fruit, sent to them by His Excellency, after one of his visits of mercy, was, to our mind, one of the strongest arguments that could be adduced in sup-

port of that purely moral system of management which the humanity and enlightenment of Pinel and S. Tuke have, after vast pains, and by the combined and persevering efforts of the true philanthropists of different lands, at length succeeded in registering among the real and permanent improvements of modern medical science. Since the time of Lord Normanby, his successors at the Castle have been accustomed to make, during their stay in Ireland, occasional official tours of inspection through some of the asylums, but have shewn no great interest in doing so. The matter has, however, been taken up in a quarter from which improvement is more likely to emanate. Lord Normanby merely acted from the impulses of a kind and generous nature, but he devised no improvements and effected no reforms. It is to our late excellent Lord Chancellor Sugden, that we owe the first intelligent effort to ameliorate the condition of the insane. His Lordship, from the moment of his landing in Ireland, connected his name inseparably with all that relates to the improvement in the condition of at once the most afflicted and least cared for class in the community; and in every instance where his interference in their behalf could be attended with benefit, he was found both ready and willing to exert his authority, with a decision which, in a host of cases, has been attended with the happiest results. The inestimable importance of such promptitude and zeal, will be rendered apparent by the extracts we are about to give from the official documents laid before Parliament.

In the Report of the Inspector-General, we find much cause for a just and generous pride. The Irish asylums are represented as in a high state of efficiency, and the new arrangements which we constantly find noticed as having been introduced since the last visit, bespeak an onward tendency which is highly gratifying. Still there is wide room for improvement, and amongst other matters which we shall notice presently, we were deeply pained to meet with the following in reference to the Local Lunatic Asylum for the county and city of Kilkenny:

“The accommodation in this asylum is very limited, and ill calculated to afford the necessary comforts and convenience which the unhappy and wretched inmates require; yet, at the same time, I cannot avoid remarking, that their condition might, by due and careful attention, be rendered less miserable, and comparatively happy. In giving a brief sketch of the condition of two of the patients, it will be sufficient to convey a pretty accurate description of the whole institution. A male patient was lying in a solitary cell (which had no window or proper ventilation), on some loose straw, without a particle of clothing, except

a filthy old blanket wrapped round him, on raising which I found the poor creature convulsed, with contracted limbs, and altogether in a state requiring the constant and judicious care and treatment of a physician.

"The other case was that of a female, who was nearly in a similar state of nudity and neglect. I might bring forward many other instances shewing the total want of the treatment and attention which persons so unfortunately afflicted require; and which, I will not take upon me to say, arises from want of proper feeling and humanity on the part of the attendants, but more, I would say, from their ignorance of the improved system of management which in these latter days has been most fortunately introduced into our district asylums."

As soon as this most disgraceful occurrence was officially reported to him, the Lord Chancellor caused meetings of the local authorities, and of the resident gentry of the county, to be instantly summoned, at which measures were taken; in consequence of which, the Inspector-General soon after reports, "that the condition of the patients has undergone considerable amelioration, and that the institution, altogether, presents a state of creditable improvement." We hope that the improvement, however, has not been allowed to stop where the Chancellor's letters left it, but that the gentlemen of Kilkenny, and, above all, the medical men of that ancient city, will remember the sacred duty of visiting the afflicted, and not leave it in any one's power to perpetuate the remembrance of another such disgraceful transaction as that which we have quoted above. Bad, however, as was the state of things in the institution at Kilkenny, where the excuse that the asylum was but a temporary provision, and tolerated only as such, might, with some faint shadow of reason, be urged in palliation (see Report for 1843), it fades into insignificance when compared with the similar doings at Wexford. We prefer giving the distressing narrative in the words of the Parliamentary Report:—

"I shall briefly state the condition of these poor patients, just as I found them, on the day of my inspection. It was the dinner hour when I arrived; I went into the male day-room, which is a dreary, damp, unfurnished apartment, lighted by a window which had scarcely any glass. There were four patients sitting at a table at dinner; the diet consisted of four pounds of potatoes and a pint of buttermilk. I proceeded next into the yard outside this apartment, and was ushered to an out-house, where a patient was locked up; on asking to see him, the keeper said that I could see him through the window, appearing unwilling, at the same time, to open the door. On looking in, I saw the unfortunate man standing at his cell door, nearly in a state of nakedness, chained by the wrists and ankle, and padlocked; he wore an old torn jacket and a short

petticoat; a trencher of potatoes lay on the floor, as also a porringer of milk. I had the door unlocked, and caused him to be let out, his chains to be struck off, and allowed to walk about the place. He was represented as a very dangerous idiot; however, I could perceive that he had intellect enough to convince me that he felt grateful so far for having been allowed his liberty. This man's name was Thomas Edwards. I found him in this very wretched state, and under similar treatment, nearly two years before the present time. I shall shortly have the gratification of presenting this same Thomas Edwards quite in a new character. The sixth case was that of a ship-carpenter, for whose care his friends paid sixpence per day; the accommodation was wretched in the extreme. A Mr. O., a most respectable person, was seventeen years in the institution; £15 a year is paid for him. His diet is of a better description than that of the others, and consists of one pound of white bread, and a pint of sweet milk, for breakfast; two pounds of pork, weekly, is what is generally allowed to him for dinner, with a sufficient quantity of potatoes; coffee is supplied by his friends. I found another patient confined in a dark cell; it was filthy, and a very foul smell emitted from it.

"The female division of this establishment was equally wretched in respect to general comfort; the bed and bedding very bad and filthy; clothing deficient,—neither shoes nor stockings allowed. In fact, there was a curtailment (from want of funds) of all the necessities and comforts of life. Animal existence was merely sustained by the most scanty and worst description of food. I should have mentioned that supper was not allowed. Their breakfast consisted of a quart of stirabout and half a pint of new milk.

"Having reported to the Lord Chancellor the condition in which I found the wretched inmates of this establishment, he directed me to communicate with the local authorities without further delay, and represent to them the necessity of their making exertions to place the institution on a better footing; and that a public meeting should be called for the purpose of taking the subject into consideration, and that funds ought to be provided by subscription, as a means of affording temporary relief to those helpless classes. It was on the approach of Christmas; and fearing that any delay should take place in providing the necessary comfort for them, his Lordship handed me a draft for £30 out of his private purse, with directions to have clothing, blankets, and sheeting, &c. purchased, and sent down with an experienced keeper to attend the institution; and that a Christmas dinner, in true English style, should be provided on the occasion."

Here, also, the very prompt and decided interference of the Lord Chancellor acted as a smart rebuke to the local gentry. Subscriptions were immediately raised for effecting the necessary improvements, and after the expiration of *only ten days* proper treatment, the new keeper thus writes, under date of the 7th of January, 1845:

"According to your instructions, I have to report to you that the patient, Thomas Edwards, to whom you directed my most particular attention, is not so violent as represented. I have him in the day-room along with the other patients all day, and he walks out in the yard with them, and has neither chains nor straps on him. I converted the lower large room into a day-room for the male patients, and the upper one for the females."

A little farther on the Inspector-General writes thus:

"On the 18th of February, 1845, I received another letter from Rickard, wherein he states: 'I am happy to inform you that the patient, *Thomas Edwards*, has become a very useful man, as he assists in cleaning, and in doing other work about the asylum.'"

How gratifying such a letter must have proved to the Lord Chancellor; how amply his Lordship must have felt himself rewarded for his most humane and zealous interference on the occasion! The episode is the perfect counterpart of the almost romantic history of the English captain (so beautifully given by Scipion Pinel, in a narrative read before the Academy of Sciences), who for forty long and dreary years had been dragging out a miserable existence in one of the then dark and noisome dungeons of the Bicêtre, unable almost to stir from the weight of his chains, utterly forgetful of all that he ever knew, even of his own history and sufferings, and without manifesting the intelligence of one of our ordinary domestic animals, whilst he was so furious that he had killed a keeper who had incautiously ventured within his grasp, yet the dormant faculties of this hapless wretch were so electrified by his chains being struck off, and his being led out into the warm and genial light of day, no longer to behold objects of terror and punishment, but to be overwhelmed with kind words and every little soothing attention which his condition and previous sufferings could demand from a humane and truly philanthropic mind, that in a very short time he was able to be intrusted with the charge of a large part of the institution. Many other equally touching and equally instructive incidents are to be found in the narration of what occurred when the great and the good Pinel was taking the first bold step in reforming the treatment of mental disease,—a reform characteristic, indeed, of the age in which he lived, and undoubtedly springing out of that uprooting of ancient prejudices and contempt for mere authority, to which the great French Revolution, though itself but a symptom, gave currency and strength,—but which has most justly transmitted to posterity the name of Pinel as that of

a truly great and enlightened man, and one of the most real of benefactors to his country and his kind.

That we do not overrate the important services which the well-known deep interest and promptitude always evinced by the Chancellor, in regard to the treatment of the insane, has had upon the management of the lunatic asylums of Ireland, we shall now turn for a while to the "Report of the Metropolitan Commissioners in Lunacy to the Lord Chancellor" (of England), 1844. By referring to the sixth section of this important document, it will be found that the institutions for the treatment of the insane at Haverfordwest (Pembrokeshire), St. Peter's Hospital (Bristol), West Auckland (Durham), Wreckenton (in the same county), Lainston (Hants), Nursling (Hants), Kingsdown House, Box (near Bath), Plumpton (Devon), Nunkeeling (near Beverly, Yorkshire), West Malling (Kent), may be all correctly characterized by the following general description. Rooms small, often perfectly dark, badly ventilated, damp, and lined only by some rotten straw adhering to the walls and floor from an accumulation of urine and fæces: the furniture, if any, consisting of a small bench or table, not sufficient to enable all the patients to be seated at the same time: patients crowded together indiscriminately, without any classification, or with only the most elementary attempt at subdivision: even males and females often sleeping in adjoining rooms which have free communication with each other at all times: dress of patients generally a mass of filthy and tattered rags, some individuals being in a state of perfect nudity, others wallowing like pigs in the filthy straw that lines their chamber floor: the food unwholesome, insufficient, and disgusting: and the medical treatment—alas! for our profession—limited exclusively to "bleedings, blisters, and setons," with the constant use of iron hand-cuffs, hand-locks, iron frames, and heavy iron chains round the neck, waist, and leg, to secure the hapless wretch to the fire-guard, bed-post, or wall; in the case of the quiet and healthy, to prevent escape; in the case of the unruly, to keep them quiet; and in the case of the sick and epileptic, "to prevent them falling and hurting themselves." Such, then, is a true and not too highly coloured picture of the state of the *charitable institutions* of England—highly civilized and Christian England—in the middle of the nineteenth century, and more than half a century after the great revolution effected by Pinel. And be it remembered, that these lunatic asylums are not like those on which a Parliamentary committee reported in 1815: they are not mere private speculations got up for interested purposes, and secured against the sudden intrusion of those whose cu-

riosity or humanity might lead them to visit those abodes of unutterable wretchedness and woe; but they are public institutions, supported by public funds, and regularly visited and reported on at short intervals by the resident gentry and magistracy of the neighbourhood, who have over them, in all the details of economy and arrangement, the most perfect and unlimited control. It is with the visiting magistrates, the clergy, and the medical men of the neighbourhood, that all the blame of such barbarity entirely rests; the ignorant and brutalized individual employed to guard the human den is but an instrument, who obeys the orders he has received, and knows no more. But it is necessary to confirm by quotations the general accuracy of the mournful picture which we have drawn. We should really wish to lay before our readers the whole black catalogue as it stands, since it would urge them to redouble the vigilance of their investigations in all cases where such authority is delegated to their care, and shew them the importance—the unutterable importance—of the most Argus-eyed vigilance and inquiry into all the most minute details of the régime to which any class of individuals are subject, whose testimony respecting themselves is not received in evidence: slave-holders, respecting slaves; ship captains, as to the mutiny of their crews; and masters of prisons and lunatic asylums, as to the persons they are employed to detain, however high-minded, generous, and humane in their general disposition and conduct, are all exposed to the same strong temptations to tyranny and misrepresentation afforded by facilities for concealment, and their testimony ought, therefore, to be received with the same allowances. The influence of this principle on the treatment of the insane might be very largely illustrated from the report before us; but our limits compel us to select a single specimen, and we can assure them it is by no means the worst which presents itself: there are other passages where we read of the discovery of concealed boxes or “cribs,” which had been used for the confinement of lunatics, but which on previous visits had been successfully hidden from the Commissioners’ observation; others where the iron implements of restraint were more fearful, more various, and more freely applied; and others again where the *healthy* and *sound-minded* were immured along with the insane, and subjected to the same untold horrors, merely for the purpose of securing the payment of a money dividend to the wrong party! But the limits of this work forbid us to quote more at large, and we, therefore, content ourselves with the following account of the state of the asylum at Plympton (Devon), which we give in the Commissioners’ own words:

“The Asylum at Plympton, in Devonshire, was first visited in October, 1842, when ten persons were found under restraint. One of them had been restrained for two months, merely for breaking windows. From the reports of the visiting justices, it appeared that complaints had been repeatedly made of the state of the buildings, but apparently without any beneficial results, as they were then in a very objectionable condition. One room, in which seventeen patients lived during the day, measured only sixteen feet six inches by twelve feet. There was no table in it, and there was sitting-room for no more than ten patients. Several of the bed-rooms were cheerless and wet, from the damp or rain, and the walls were besmeared with filth. Close to some small crib-rooms, in which some girls (violent patients) slept, there was a bed-room for a male patient, who, it appeared, had access to the room in which the girls slept. At the second visit, on the 14th of July, 1843, the condition of the pauper patients continued wretched in the extreme. Some of the buildings, to which attention had been directed by the previous Report, were in the same objectionable state as then described; the day-room being most offensive, and the airing-court comfortless, and rendered dangerous by a quantity of loose stones scattered about. In a day-room, in a state of furious mania, was a young woman, who had been delivered of a child five or six weeks previously, confined by a strait-waistcoat, and chained by the arm and leg to a bench. Another woman in this ward, in a strait-waistcoat, was lying in a hole in the middle of the airing court, without covering to her head, or anything to shelter her from the broiling sun. Ten curable patients and two idiots were under the charge of a lunatic, who was himself confined by a chain from the wrist to the ankle, at the arrival of the Commissioners, principally to prevent him from escaping; this chain was soon afterwards taken off at his own request, in order that he might not be seen by the Commissioners so restrained. The day-room of this ward was extremely small, with an unglazed window, and no table. A series of sleeping cells for dirty patients, connected with this yard, were dark, damp, and offensive; they were occupied at night by four males, two in one cell, and two in single cells. The dirty male paupers slept in a room, formerly the dairy, in which were six beds; it was damp, ill ventilated, and offensive. There was only one small window unglazed, which was closed with a shutter at night. There were chains and wrist-locks attached to nine of the beds on the male side, which were constantly used at night, partly to prevent violence, and partly to guard against escape. Four of the female paupers, represented to be subject to violent paroxysms after epilepsy, were ordinarily confined to their beds by chains and wrist-locks.

“At the third visit to this house, on October 2, 1843, three women were found chained by their legs to the benches. One of them, mentioned in the previous Report, had, besides the chain to her leg, another chain passing round her waist, to which were fixed, by an iron ring, two hand-locks, in which both her hands were confined. Besides this restraint, there were twenty-one patients who were chained to their beds

at night : two of these were private patients, and the others were male and female paupers. The three sleeping-rooms in the women's cottage could not, in the judgment of the Commissioners, have been cleaned for some days ; the wooden cribs were filthy, the floor was in holes, and soaked with urine, and in parts covered with straw and excrement. We can give no other general description of it, than that it was most disgusting and offensive. In a crib, in one of these wretched places, a female private patient who was cleanly had been compelled to sleep ; she implored us only to remove her to a better part of the house. The remainder of the third Report of this house by the Commissioners is a detail of numerous other abuses. The following is an extract from it :—‘ In one of the cells in the upper court for the women, the dimensions of which were eight feet by four, and in which there was no table, and only two wooden seats, fastened to the wall, we found three females confined. There was no glazing to the window, and the floor of this place was perfectly wet with urine. The two dark cells, which adjoin the cell used for a day-room, are the sleeping-places for these unfortunate beings. Two of them sleep in two cribs in one cell. The floor in the cell with the two cribs was actually reeking wet with urine, and covered with straw and filth, and one crib had a piece of old carpet by way of bedding, besides the straw, but the other appeared to have had nothing but straw, without any other bedding. In the other cell, the patient who slept in it had broken her crib to pieces, and a part of it was remaining in the cell, but the straw was heaped up in one corner, and as far as we could rely upon what was said, she had slept upon the straw, upon the ground, at least one night. The straw itself was most filthy, the floor was perfectly wet with urine, and part of the straw had been stuck to the wall in patches with excrement. It must be added that these two cells and one other adjoining to it, have no window, and no place for light or air, except a grate over the doors, which open into a passage. The persons of these three unfortunate women were extremely dirty, and the condition in which we found them and their cells was truly sickening and shocking. Adjoining to the two sleeping-cells of these women, and opening into the same passage, was a third cell which was occupied as a sleeping-place by a male criminal of very dangerous habits, and an idiotic boy. This cell was dirty and offensive, and the floor of it wet with urine, but it was not in so filthy a state as the other two. The criminal was fastened at night to his bed with a chain. We strongly objected to these men being confined in a cell closely adjoining to the females. The whole of these cells were as damp and dark as an underground cellar, and were in such a foul and disgusting state, that it was scarcely possible to endure the offensive smell. We sent for a candle and lantern to enable us to examine them.’ ”

We regret to say that in all these cases repeated expostulations had been addressed to the local authorities, who generally had readily admitted the lamentable state of the institution

over which they presided, but after the most lavish promises of amendment, the Commissioners, on their next visit, always found matters precisely as they had been before. At Haverfordwest, other means of redress having been found ineffectual, the Commissioners' Report on the state of the institution was laid before the Secretary of State for the Home Department, and the opinion of the law officers of the crown was taken as to "the parties amenable for the great and cruel abuses existing in this asylum;" to which question the Attorney and Solicitor-General gave their joint opinion that the cause of the state of the asylum appeared to be "the neglect and want of attention on the part of the justices of this town (Haverfordwest), but that it was *difficult to say that there had been any breach of the provisions of any of the Acts of Parliament, which could be the subject of legal proceedings!*"

In this last case no blame whatever was attached to the keeper, who had even expostulated with the visiting magistrates as to the state of the house. He and his wife were allowed "a salary of £20 a year *between them*," and they were required to take the charge of *eighteen* unruly patients, without being furnished with a single "assistant or servant for the purpose of keeping the asylum or the patients clean, for cooking the food, for baking the bread, or for any other purpose connected with the establishment." Yet even the solitary services of this couple were denied to the poor patients under their charge. "At our first visit the keeper was absent. The Commissioners were informed that he was at work for some person in the neighbourhood." Need we wonder that in an establishment so managed, "the Commissioners could not discover any linen whatever," except some tattered garments on some of the patients; whilst the poor lunatics were found chained to the walls and floor, wallowing in filth and excrement, in dungeons in which "the stench was so offensive, that it was scarcely possible to remain there."—p. 48. When, some months since, we read over the Report of the Inspectors-General in reference to the abuses occurring in our own country, we felt inconceivably pained and degraded; but after going carefully through the Report of the Metropolitan Commissioners, we confess that we were astonished to find these feelings exchanged for something nearly allied to respect; for here, in Ireland, poverty-stricken, and divided by intestine strifes as we undoubtedly are, contrition was immediately excited by expostulation, and on a representation of the real state of the case being made to them, the gentlemen of the locality in which the occurrences complained of had happened, at once subscribed, and

took other steps to remove the stain from their neighbourhood; but in England we find Dickens' pictures of the parish authorities more than realized, the justices being more frequently accomplices than dupes.

"As evidence of the spirit in which this establishment was upheld, the Commissioners were informed that a few years ago a person was directed by Government to examine the buildings constituting the asylum; and that, some notice being had of his expected arrival, *workmen were employed during the whole of the preceding night* upon the repairs, so that when the Government agent visited the building in the morning, he found it undergoing repair. These repairs, however, *were discontinued immediately after the agent left the asylum, and have never since been proceeded with.*"—*Metropolitan Commissioners' Report*, p. 49.

This is not a solitary case; we have already quoted passages from the Parliamentary Report to shew how expostulation, complaint, and even appeal to the highest authorities in the realm, were in many cases found ineffectual to procure redress: and shall the law be allowed to continue so imperfect, that institutions intended to relieve one of the greatest "ills that flesh is heir to," may with impunity be turned to a place of punishment more horrible than the *Pistrinum* to which the "*furcifers*" and "*homines trium literarum*" of a Roman household were, by cruel masters, irretrievably doomed, without there being any hope of redress for the grievances complained of, but in the very distant prospect of the development of better feeling, and a stronger sense of duty in the minds of our population generally? Surely some one will be found virtuous enough to abandon for a while the struggles of party, and the strife for power, to devote himself to those substantial ameliorations, which, though they may not for a time attract the public eye, are found to be in the end a more certain basis for a virtuous fame than the noisy and exciting contests in which politicians delight to engage. Nothing can possibly be a greater farce—if we could venture to apply such a term to what concerns the sufferings of our fellows—than supervision of lunatics by magistrates and country gentlemen, who, in common with the public generally, are impressed with the most absurd and mischievous notions respecting the nature and treatment of insanity, and whose ideas of the management of public institutions of the kind are none of the most definite, even if the said magistrates, &c., were not too much engrossed with topics and pursuits in which they are more immediately interested, to be able to devote to such a duty the time and attention which it imperatively demands.

It is a very great mistake, however, to suppose that the institutions enumerated in a previous page are the only ones which present anything reprehensible in their arrangements or management. Both in Ireland and England the amount of accommodation for insane patients is most lamentably deficient; in consequence of which, numbers are thrust into the work-houses, where they are either mingled indiscriminately with the other inmates, or confined in miserable dens, under no intelligent superintendence, and subject only to a flying visit from a medical man, whose duties in the poor-house alone, to be faithfully and satisfactorily discharged, would require a power of frame and vigour of mind rarely found united in the same individual; or, what is still worse, they are found associated with the felons in our jails, where they lie till "the iron has entered their souls," and their disease is beyond the hope of remedy. Throughout the Metropolitan Commissioners' Report we find, in reference to the institutions *favourably* represented, in almost every page complaints of over-crowding, miserable deficiency in the means of taking air or exercise, as well as of affording to the patients occupation, instruction, or amusement; whilst in all, the number of attendants was very far below what is reckoned necessary in Continental establishments of the kind; and in consequence of this want of attendance, and the general adoption of the cellular system, frequent passages such as the following are met with in all Reports on the subject.

"At the licensed part of the House of Industry at Kingsland, near Shrewsbury, containing from eighty to ninety insane persons, they were nearly all fastened to their beds at night by chains to the wrists. In consequence of our remonstrances, this restraint has been in a great measure discontinued."—*Metropolitan Commissioners' Report*, p. 43.

"At Nunkeeling, in Yorkshire, a most dangerous patient had escaped three times. We found him in confinement after his third escape. His legs were confined by leg-locks; one arm was chained to his legs, and both his arms were fastened behind him. He had twice nearly succeeded in killing his keepers, and once in setting fire to the asylum. Both the restraint employed, and the extremely small yard in which this man was confined, were calculated to injure his health. At a licensed house in Yorkshire, we found two male patients confined in strait-jackets. We thought the restraint improper, and after some remonstrance with the keeper, they were removed."—*Ib.*, p. 73.

These, and many others, the tenor of which is similar, shew that very much has yet to be done before those humane and effective methods of treatment which, since the days of Pinel and S. Tuke have been so ably recommended, and successfully applied by a host of great men in all countries, will

be fully understood and carried out even by those who profess to approve and adopt them. By no one has the moral method been advocated with greater eloquence and zeal than by the present excellent superintendent of Hanwell (Doctor Conolly). Nearly all the reports from the Irish asylums state that "no restraint has in any instance been made use of," but we know too well that such vague assertions in all public documents must be received with great caution. We have heard of patients being sent out of a general hospital when almost at the point of death, in order to lower the bills of mortality; and if we were told the substitutes which are often employed for the strait-waistcoat or the muffs, we should find that the soothing expression "no restraint" was an artifice of the same kind. The following extract from Dr. Stewart's Report of the Belfast Asylum, expresses exactly the opinion of the Metropolitan Commissioners on this much disputed subject^(a), and we are sure it is what all who have seen anything of the workings of hospitals for the insane, and who are not wedded to a system, will most fully coincide in.

"The same system, with reference to restraint, continues to be pursued in this institution, as already stated in former Reports, which is that of having recourse to it only when found absolutely requisite for the safety and relief of the patient, as well as guarding others from danger; and then using it in the mildest form,—leathern muffs, for instance, or the long-sleeved jacket,—and for the shortest period. Happily, the cases requiring even the temporary application of either muffs or jacket are few indeed, but still such do present themselves; and, until insanity be blotted out from the ills which 'flesh is heir to,' or altogether changed in its more *striking* effects, physical restraint, in some form or other,—but, still, restraint,—cannot be dispensed with. Truly, the so-called 'total abolition' of restraint appears to be only one of the many vulgar delusions, and speciously popular *ad captandums* of the day. No doubt, in some licensed institutions (in contradistinction from the regular County Asylums), for the reception of the insane poor, from the work-houses, &c., of English Poor Law Unions, where restraint had been carried out to a most pernicious, inhuman, and disgraceful extent, as recorded in official documents, its present amelioration may, comparatively, be considered as a total abolition thereof." —*Report of the Belfast Asylum*, p. 14.

(a) In noticing the "Report of the Belfast District Asylum for the Insane Poor," it would be injustice to the excellent medical manager not to state that his are the only satisfactory reports which have ever issued from the public asylums of this country. Dr. S. gives full particulars as to all the details of the Institution over which he is placed, and has besides exhibited his information in copious and well-arranged statistical tables, which we have seen no approach to, except in the Reports of the Dundee, the York Retreat, and Hanwell Lunatic Asylums. We may mention that Belfast and Clonmel are the only District Asylums in Ireland that have medical managers.

In Ireland, the chief defects of our Lunatic Asylums,—district and local,—are:—1st, In the buildings; defective illumination, and gloomy corridors, with still more gloomy solitary cells, requiring an amount of attendance that is quite unattainable, and which, above all, gives to the whole building a prison air, that it is most desirable, on many accounts, to avoid. 2nd, In the grounds attached, which, with but a few exceptions, are quite insufficient to afford room for employing the patients in useful or healthful labour; and in very many of the institutions of England, as well as in some of those at home, are also equally insufficient for allowing them to take the necessary air and exercise. 3rd, In their internal economy. All authorities on the subject, Sir William Ellis, S. Tuke, Dr. Conolly, &c., in Great Britain; and Pinel, Esquirol, Foville, Falret, Jacobi, &c. &c., in other countries; are agreed in attaching more importance to amusement, useful occupation, and reading and study, properly controlled and directed, than to almost any other means that can be employed in the cure of insanity; and in this view all successive commissions have most fully agreed.

“The answers which we have received to our inquiries,” say the Metropolitan Commissioners, “have been, generally, that occupations and amusements, especially such as take place in the open air, are beneficial to the bodies and minds of the patients.”

And again:

“Music, dancing, and various games (as many as possible in the open air) may be resorted to with advantage, in most cases, except where the patient is too excitable. No asylum should be without a library. Books, judiciously chosen, especially such as will not encourage any morbid ideas already existing, are an important help in promoting a happy and serene state of mind. In cases of great depression, and particularly of religious melancholy, books of a cheerful character should be placed, to a much greater extent than is generally done, at the disposal of the patients.”

Now, having visited a good many of our Irish Institutions, and having observed that the means of useful occupation, as well as the facilities for indulging in healthful recreation or study, were either totally absent or very deficient, we felt curious to observe whether in those which we had not visited any better state of things existed. Our expectations were, however, doomed to disappointment; for although general statements, respecting amusements and reading, are made by some managers, they are all qualified in such a manner as to amount, in reality, to nothing; and in the annual accounts we find that *no expenses whatever had been incurred on this head.* We have,

besides, many useful hints, like the following, thrown out in different places. Dr. Jacob, of Maryborough, says:

“Although much cheerfulness prevails in the more orderly divisions, still I conceive that these classes would be materially benefitted by regular access to a well-chosen collection of suitable books. A school might also be established for each sex with advantage, and the attendants might considerably increase the happiness of the patients by reading to them aloud. Whether such arrangements might be generally adopted, through the influence of the Inspectors-General, I cannot determine; they, perhaps, will require time to carry them into effect; but I trust that these institutions are in a state of transition which will ultimately result in a considerable increase of benefit and happiness to the patients.”

And Dr. Sheill, of Clonmel, among other excellent suggestions, has the following, which is also enforced by the strong approval of the Inspectors-General.

“Another cause of the great difference that exists between the numbers of refractory and tranquil patients in the male and female departments (being nearly in the inverse ratio of each other), is, that in the former there is a class of well educated and intelligent keepers, two of whom are competent to fill offices of a higher character; whereas, in the latter, notwithstanding the Manager's efforts, he finds it impossible to procure nurses otherwise eligible, who possess even a moderate degree of education. This has suggested the advantages which would probably result from the appointment of a fairly educated and sensible woman, as head nurse or housekeeper, at wages of suppose £20 per annum, with rations, who should consider herself in every respect an *upper servant* of the institution, and whose duty it should be, after the morning business of the divisions was done, to spend the remainder of her time in the female wards amongst the convalescent and orderly patients, performing the offices of school and work-mistress. It is unnecessary, in this report, to refer particularly to the general routine of employment of the patients, as this is exhibited in the special return furnished by the Manager under the proper head.”

The following is, as yet, a unique case, but we hope it will not long continue so. In the Report on the Armagh District Asylum we read, that

“The matron has established a school for the males and females, and I found thirty-seven so engaged; and, from the order and cheerfulness with which they received instruction, it appears to me an employment worthy of imitation for the convalescent and tranquil. The manager, Mr. Jackson, is quite satisfied of the importance of school instruction as a curative means for the disease of insanity.”

In the Richmond District Asylum there are a few books

for the use of the patients, who are said to amuse themselves with "*occasional* ball-playing, dancing, draughts, and other small games;" but St. Patrick's Hospital (Swift's) is the only Irish institution for the insane where we have seen the inmates pretty generally occupied in reading, or where music is mentioned as having been at all habitually made use of as a means of cure. All is, however, in every case, left to be provided by the individual effort of the manager, who is supposed to be disinterested enough to increase his own burdens by voluntarily taking upon him duties and responsibilities which he is not expected or required to discharge. To those who have ever attended the *réunions*, or musical and convivial meetings, which take place, not at long intervals, when they must produce a hurtful degree of excitement, but every few days, as in many of the Continental and American, and in some also, we believe, of the English and Scotch institutions for the insane, the absence of such powerful means of leading the thoughts to flow in those channels from which they so long had strayed, must be viewed as a serious defect in our Irish asylums, to which, however, we hope the remedy will soon be applied. Mrs. Jackson's school for the lunatics is an act of substantial reform and true philanthropy which is deserving of the highest commendation. We remember reading in the report of an American institution, which, unfortunately, we cannot at present lay our hands on, of numerous individuals who, entering the asylum as lunatics and unable to read or write, eventually left it sane, and with the elements of a good general education, the acquisition of which had been made the chief means in effecting a cure of their disease. Surely such a noble instrument is worthy of being applied systematically and effectually in the charitable institutions of our own land.

The mode of warming the long corridors of our public hospitals for the insane, by means of open fires, the genial influence of which is confined to a circle of a few feet in diameter, within which the strongest and most violent of the patients rule in undisputed sway, has often been complained of, and it is to be hoped that some more general method of warming, by hot air or steam pipes, as at several of the great English and Continental institutions, will speedily be introduced, and that no motives of a misplaced parsimony will delay the adoption of any useful or humane improvement of the kind.

The only other evident defect in the internal arrangements of our public asylums is the deficiency or total want of bathing establishments; but this has been so loudly complained of, that we would hope it is now in a fair way to removal.

Those of our readers who have any acquaintance with the literature of insanity, must be fully aware how very recent are all attempts at anything like accurate statistical returns on the subject. In 1810 Dr. Powell(*a*), Secretary to the Commissioners of Lunatics, estimated the number of insane persons in England at about 1 in 7,300 of the whole population. In 1820 Dr. Powell(*b*) shewed that this was a most erroneous estimate, and made the proportion 1 in 2,000. In the edition of Sir A. Halliday's work, published in 1828, the number of lunatics are proved by recent returns to amount to at least 1 in 1588; but the very following year, having enjoyed additional opportunities of getting information on the subject, Sir A. Halliday published a second work on the numbers of insane and idiots in England and Wales, in which he finds it necessary to swell their amount to 1 in 769, and seems to think that even this is beneath the mark. The first authentic public document on the subject was a Parliamentary Report of 1836, in which the number of *pauper* lunatics and idiots, in England and Wales, was ascertained, by returns verified on oath, to be 13,667, out of the then population of 13,897,187, or as 1 to 1,000 very nearly. The Metropolitan Commissioners, whose sources of information were more ample than any hitherto available, reckon the pauper lunatics in England and Wales to be 16,821; of whom 4,400 are confined in county asylums, 168 in military and naval hospitals, whilst no less than 9,339 are shut up in workhouses; the remaining numbers are, Bethlehem and St. Luke's Hospitals, 563, and other public asylums 879; the patients of a superior class confined in private asylums and under commission, amounted to 5,455; making a grand total for England and Wales of 20,893, out of a population of 16,480,082, or 1 in 771, which almost exactly agrees with the estimate made in 1829 by Sir A. Halliday.

In Ireland the returns from the asylums seem to have been given with very considerable accuracy for the last twenty years at least; but it is still a desideratum to learn the true amount of lunatics, idiots, and epileptics, who are roaming at large. In 1836 the number of these classes confined in asylums and gaols was 3,077, and in 1844 it was 3,681; but at the latter date there were, in addition, in workhouses, 658; making the total number of pauper lunatics in confinement 4,339; and the number not under restraint, but roaming at large through the country, the Inspectors-general state they have ascertained "through the

(*a*) Trans. London Col. of Physicians.

(*b*) An Inquiry relative to Insanity. Lond. 1828.

agency of Government," to amount to no less than 6,217. Hence, adding 10,556, the number of paupers insane or epileptic, to 299, the number of patients in private asylums, we have for all Ireland, the population of which is 8,175,127, a gross total of 10,855 lunatics, idiots, and epileptics, of every grade, or about 1 in 753. If, however, we estimate the annual increment of the population in Ireland at one-half per cent., which it is very nearly, we have 8,297,749, for the calculated population in 1844, the period of the Commissioners' inquiry, which changes the proportion of lunatics to 1 in 764. That the amount of insanity in Ireland should proportionally exceed that of England is directly the reverse of what ought to have been expected, considering the greater commercial and speculating habits of the English; but the comparison only shews that statistics on this, as on most other subjects, are still too imperfect to afford grounds for correct reasoning. We may here remark, that for information respecting insanity in Ireland, the Report on vital statistics in the Irish Census for 1841, drawn up by Mr. Wilde, is still the best to which reference can be made; and indeed, with the exception of Mr. Thurnam's late work, it also affords the best model for the arrangement of the tables; Mr. Wilde's forms being, in our opinion, much superior to those adopted by the Inspectors-general in their Annual Reports, as well as to the tabular forms which we find in the Metropolitan Commissioners' Abstract. The latter we regard as highly unsatisfactory and confused.

It results then from the most recent and accurate investigations, that of the 10,855 lunatics or epileptics in Ireland, considerably more than half, or 6,217, are ranging about at large, although many of them are represented as "dangerous to society;" and it is admitted upon all hands that a large number of them "ultimately become inmates of our gaols," whilst even of those who are in confinement, no one who has been in the habit of visiting those places can reasonably consider the lunatics in our gaols and workhouses as subjected to any rational treatment, although it has been proved (and in the present state of science it would be puerile to do more than allude to the fact) that in all cases of mental disease, the chances of cure are inversely as the time which has elapsed since the attack. Now the reason why this and many other absurd regulations in reference to the insane are allowed so long to continue in force, is the fact, which it is useless to garble or conceal, that not merely the educated part of the community at large are still grossly ignorant respecting the general principles to be kept in view in the treatment of lunatics, but by far the

largest proportion of our own profession, who have not made insanity a special study, are, on this subject, the victims of the same prejudices and erroneous notions which prevail in a less refined form among the vulgar. It is generally imagined, and with some apparent reason, that a man who knows how to treat the diseases to which the body is liable, should also be capable of undertaking the direction of those cases in which the mind is the part affected. Now, since it is well known that students are carefully excluded from lunatic asylums (though gaping visitors are very generally admitted), what does all this amount to, but that physicians ought to be very capable of treating diseases which they have never seen, and which very few have even read about. The supreme absurdity of such a notion is only equalled by the regulations respecting medical study, not long since in force at Oxford and Cambridge (at the former of which universities they are not yet wholly extinct), where the candidate for a medical degree was only required to attend a certain number of *divinity lectures*. The public, however, preferred men who had dissected and studied disease at the bed-side, and the classic sisters were compelled tardily to accord with the spirit of the age. So it is exactly with regard to insanity. The medical men who have not studied mental diseases have been superseded by empyrics who have done so, and the result has been, that some most intelligent persons, and who on other subjects reason most correctly and acutely, have actually argued that a knowledge of medicine is a "*disqualification*" in a manager. This opinion must have been pretty generally diffused, when we find that in the whole of Ireland there are but two medical managers of lunatic asylums. We can scarcely conceive any reasonable man, after serious reflection, entertaining a doubt that the individual who has made himself familiarly acquainted with the influence of physical agents on life and organization in all its generality—who has observed and studied, and recorded in his experience, the strange and mysterious sympathy betwixt mind and matter, with the manner in which each acts and reacts upon the other,—we say, we can scarcely conceive of any reasonable man entertaining a doubt that such an individual is infinitely more capable of undertaking the care of insane patients, than one who, whatever may be his natural powers of observation and reasoning, has undergone no such previous training. Cases of mental aberration of many years' standing, which have at once been dissipated by the removal of a bony spicula pressing on the brain, and which would never have been even thought of but by a well-informed medical practitioner, are

glaring instances in point to the public; but the physician can reckon up very many of more ordinary occurrence and equally conclusive.

It requires great acquaintance with physiology to be able to distinguish what is normal from what is abnormal. The savage knows no mental gauge but capability of supplying the necessities of existence. Science and civilization, whilst they have increased our wants and desires, have also sought to form a code by which the intensity and the mode of action of these influences might be regulated and defined, and a deviation from this code, or general law, is what we call insanity. The law is indeed vague, unsatisfactory, and difficult of application, but its stringency and generality is proportioned to our knowledge, and every year is giving to it increased development and scientific precision. To the gross ignorance manifested both by the public and the Profession, in regard to mental diseases, we would ascribe most of the cruelties to which at all periods, and both at home and abroad, lunatics have so constantly been exposed. In ancient times mild cases of insanity were entirely overlooked; the first manifestations of disease were regarded but as peculiarities of taste or disposition, whilst the more evidently demented seem to have been viewed as the especial favourites of heaven and the inspired interpreters of the will of the gods. The inspiration of a deity, and the ravings of a maniac, were in Greek expressed by the very same term, and, as must suggest itself to the minds of most of our readers, the great apostle of the Gentiles, when acting under the immediate inspiration of the Holy Ghost, and exhibiting the wonders of miraculous power, was called a madman by his unbelieving hearers: so perfectly identical in those days were madness and the influence of a supernatural agency. As Christianity gradually usurped the place of paganism, we find the oracles and soothsayers of Greece and Rome undergoing a gradual transformation into witches or sorcerers, or some other of those mystic characters who were alternately the terror and the object of adoration of the ages that preceded the revival of learning, the royal fool being the last earthly representative of the *θεομαντις* of old. The opinions of our forefathers, in regard to these matters, have been so admirably traced by M. Calmeil, in his classical and truly wonderful work, and in the pages of this journal by the pen of his able and eloquent reviewer, that we shall only remark that whoever peruses either of these productions can have no difficulty in admitting that the notion of the superhuman strength, extraordinary tolerance of hunger, thirst, fatigue,

and pain, and the infernal cunning, treachery, and ingenuity of lunatics, to which superstition and ignorance originally gave currency, and which even now is a popular error by no means confined to the vulgar and uneducated, but shared in even by some of the most eminent of our own profession(*a*), is the real source and almost universal cause of the atrocities to which we have already so often alluded. Penetrated by the one predominant idea, though denying it in words, no means are thought sufficient to prevent the danger of escape or violence, and ordinary suffering and privation are imagined to be unfelt, or but little heeded by the insane patient, whilst his mental disease is thought to place him beyond the sphere of those humaner influences which in other cases would be deemed and found all-powerful. The iron-barred doors and clanking chains are regarded by the visiting justices and others, as evils, indeed, which it would be desirable to avoid, but, like the pains and penalties of the law, in the present state of mankind, they are believed to be *necessary evils*, and the filth and squalid misery, their usual accompaniments, are but corollaries to the belief in the insensibility and greater powers of endurance of man bereft of mind, and the extreme danger of much familiarity with the mad. We rejoice, therefore, to find that some means are now about to be adopted to raise up in Ireland a class of young physicians capable of taking the charge of hospitals for the insane. About twelve months ago the Lord Chancellor announced his intention of giving "ten guineas yearly during the next ten years for the best essay on a subject connected with the treatment of mental disease, to be selected yearly by the College of Physicians and College of Surgeons of Ireland, and the prize to be awarded by the council of the college by whom the subject was chosen."—Dr. Williams is the first of the successful candidates who have competed for the prize offered by the Chancellor. The subject chosen by the College of Physicians was on the means of procuring sleep in insanity. The essays were sent in accompanied by sealed letters, each containing the author's name and address, and bearing two mottoes on the outside to avoid favouritism. Dr. Williams, as he states in the preface,

"Has rapidly glanced at the following topics:—The importance of early treatment in cases of insanity; the prevention of insanity by procuring sleep; the error of always attributing insanity to organic disease; and those numerous agents which indirectly produce sleep, although not narcotics. Bleeding and the antiphlogistic treatment have been more fully considered, and an attempt has been made to shew

(*a*) See the *Lancet* for 1837–8 for some cases in point.

the importance of distinguishing inflammation from maniacal irritation; the great advantage of the calming and soothing system being duly estimated. Considerable attention has also been given to narcotics, the use of various kinds of baths, exercise and amusements, and travelling; together with some observations respecting metaphysical and moral treatment."

This essay, though of necessity chiefly a compilation, is decidedly a work of merit, and proves the author to be a man of practical observation and experience. It is altogether very well got up, and will be found to contain an excellent *résumé* of what is known upon the subject.

In addition to reforming some, exercising a most vigilant and salutary watch over others of our lunatic asylums, and giving prizes for essays on points connected with the treatment of the insane, Sir Edward Sugden, we are informed, intends further connecting his name with the progress of medical science among us by establishing, in Dublin, a regular system of clinical instruction on diseases of the mind. Nothing certainly could be more judicious, nothing more truly philanthropic, than such a step. It is most absurd and strange—surpassing strange, that whilst we have amongst us thousands and tens of thousands of lunatics, there should yet be no means of learning how to treat them but by making a journey to France, Germany, or America. It must, however, be remembered that the inducements held out to a student or a young medical man in this country to devote six months of his time to the study of mental diseases, are really next to nothing. Let the managerships of the lunatic asylums in this country be given to properly instructed medical men, and then we may hope to see good results. If the new clinical school for which we shall be indebted to Sir Edward Sugden be conceived in the same spirit as his prizes—if merit be made the *only* recommendation and test, by selecting, by *Concours*, the most deserving candidates for posts of honour or emolument; and if it be made worth the while of those who, with the education, manners, and feelings of gentlemen, have already completed their medical education (and none other, in our humble judgment, ought ever to be thought of as superintendents of asylums), to enter, with zeal, on the study of insanity as a science and art,—a very few years will suffice to raise up amongst us men to contend, successfully, with the Pinels, and Esquirols, and Falrets, the Fovilles, the Guislains, the Calmeils, the Tukes, the Conollys, the Ellises, and the Pritchards, of more favoured lands, the palm of successful investigation in this most meritorious line of inquiry. Its ultimate influence will entirely depend on the charac-

ter which the new institution may acquire at starting. We have every confidence in the excellent intentions and enlarged views of the late Lord Chancellor; but if he takes for his model any institution that exists here or in England, we are convinced that his noble project will fail, utterly and entirely fail. The measure is, however, in good hands, and we hope our anticipations will be more than realized. The last act of Sir Edward Sugden, connected with the lunatic asylums of Ireland, prior to his departure from this country, was a proposal made to Mr. Cusack, the senior medical officer of Swift's Hospital, to the effect that a number of keepers, male and female, should be received into and educated in that institution for a certain length of time, in order that they might be made available either by the public, or employed in the various asylums throughout the country. Before such persons, however, can receive clinical instruction in an hospital such as Swift's, some arrangement must be made for their maintenance. Either the Government should provide for the support and education of such persons, or, if they educate themselves, they should be rewarded with something beyond the pittance now given to the keepers in lunatic asylums, or even in private practice; and some means must also be taken to make their practical knowledge and skill more powerful recommendations to a vacant post, than the patronage that they can bring to bear on the electors.

We cannot close this essay, already too long, without expressing a hope that some alteration will very speedily be effected in the laws relating to the management of *the property* of lunatics. This is a subject on which recommendations have been made by a variety of Commissions, but nothing important has yet been done. We are acquainted with the case of an individual—one whose mental aberration was so difficult to establish, that several physicians of the highest eminence attested upon oath their belief in his entire sanity, whom, with the education, manners, and habits of a gentleman, we have seen not long ago clad in frieze, and mingling (most reluctantly indeed, but of necessity) with the lowest paupers in one of our asylums. This gentleman was legally entitled to large property; yet we were informed, on making inquiry, that his having, *some eight years ago*, made use of threatening language, *but no violence*, ranges him in the category of "dangerous lunatics;" from which category he can never effect his escape, and merely on account of classification, is for ever debarred from any of the advantages accruing to the possession of his wealth. With what painful vividness must he realize all the horrors of a forced sojourn in a madhouse, so admirably depicted by Eugene

Suè, in the person of Mademoiselle de Cardoville! A slight deviation from what we designate sanity is surely not a crime sufficient to justify such prolonged torture. It is the existence of bad laws which destroys the efficacy of good ones; and if an enactment, such as we have alluded to, be found in the Statute Book, we hope that Sir Edward Sugden, or some other reformer, will get it blotted out as soon as possible.

We have not, in this review (being overwhelmed with facts, and very limited in space) been able to make much allusion to the Reports of our Scotch friends; but there could not be better evidence of the manner in which the Montrose and Dundee Asylums are carried on, than the anxiety which the medical men connected with them evince to be subject to Government inspection.

"We also," say they, "take the liberty to suggest, in the event of any farther change taking place in the inspection of asylums in this country, that the labours of the English Commissioners, or other gentlemen equally well qualified, should be extended to Scotland; because we think that the visitation of persons possessing so much knowledge and experience regarding the treatment of the insane, must necessarily be attended with various advantages. The visitations of the commissioners are understood to have been productive of salutary effects in England."—*Twenty-fifth Report of the Dundee Royal Asylum for Lunatics.*

This is what we like to see, and where a feeling of the kind becomes general, the labours of the Commissioners will soon be very far from irksome. We shall now take leave of our readers, but not without indulging the fond hope and earnest aspiration, that not merely a few lunatic asylums, but all our public institutions of every kind, may be more and more prepared to undergo, and *anxious for*, the strictest investigation into their arrangements and management; for we may be satisfied that those only are well conducted, which we find really and truly content "**APERTO VIVERE VOTO.**"

A Manual of Medical Jurisprudence. By ALFRED S. TAYLOR, F.R.S. Second Edition. Churchill. London: 1846.

We are no lovers of Medical Manuals; indeed we rarely, in the discharge of our critical duties, sit down to the examination of a work with feelings of greater dislike than when we have to deal with one of those fleshless epitomes of medical science. We are reminded of the cheap temptations of the

French restaurant, with its *diner à dix sous, pain à discretion*; and dread a repetition of the same unpalatable fare, of which it has been occasionally our distasteful duty to partake. The process by which those books are fabricated is such as, even in the most skilful hands, dissipates almost the whole spirit and flavour of the original materials, and leaves in their stead a vapid, meagre, unsavoury product. They bear about the same resemblance to the works from which they are compounded that portable soup and patent gelatine do to veal and venison. They are the offspring of our present systems of professional qualification, generated solely to serve the temporary necessities of the student. They cram him with a mass of one-sided views and opinions, unexamined, unreflected on; they oppress and enfeeble, instead of exercising and invigorating his understanding; they array him in a tinsel panoply that enables him to pass the mimic ordeal of a court of examiners, but proves useless and even cumbrous in the real struggles of professional life.

It was with regret we saw the respectable name of Mr. Taylor associated with this class of publications. An attentive examination of his work has, however, convinced us, that it has nothing in common with such productions except the name; and, perhaps, we should add, the very cheap price at which it is published. In a spirit somewhat akin to that of the hero of antiquity, who

“Bore no motto on his shield,
For he would rather *be* than *seem* good,”

Mr. Taylor has consented to enter the lists with a blazonry which is, at least, equivocal, relying on his abilities to vindicate for it a title of nobility. In this he has been entirely successful. The work, though called a Manual, is, in reality, a comprehensive and complete treatise on medical jurisprudence; and, if printed in a different type, would fairly form two very large octavo volumes. There is scarcely a subject included in it which is not as fully and thoroughly investigated as the present state of the science permits. It is not overladen with cases; but a considerable number, some of which are original and very interesting, are appropriately introduced, and continual reference is made to the most important published observations that illustrate the subject under consideration. Like all Mr. Taylor's writings, the present work is conspicuous for perspicuity, precision, and accuracy, in which respects, indeed, it is superior to any work on medical jurisprudence in the English language; while, on the other hand, the author's

intimate acquaintance with our system of jurisprudence, and the practice of our courts of law, renders it much more useful to an English student than any foreign treatise on the same subject, excellent, as no doubt, some of the latter are. We may refer the reader to the chapter on wounds, as strikingly exemplifying the justness of this last remark. The opinion we have formed of the work is not derived from a hasty or superficial examination; we have not merely read, but studied, a considerable part of it with great attention, and can unhesitatingly recommend it not only to the student, as his best guide in the study of this branch of medical science, but to the practitioner also who has never learned, or who has forgotten what he learned of medical jurisprudence, as the safest and most convenient book of reference on the subject. In expressing so favourable opinion of the work, as we do little more than feebly echo the far more influential decision already pronounced by the professional public, which has rendered a second edition of it necessary within two years from its first publication. And in order to form a just estimate of the importance of the opinion thus expressed by the Profession, it is necessary to bear in mind, with what slowness, and amidst what obstructions, a taste for the cultivation of this branch of professional knowledge is developing itself in these countries, so that even still, some of our licensing bodies hesitate to give it a place in their curricula of education. Those that exclude it are, we rejoice to say, now but few, they are the Universities of Oxford, Dublin, and St. Andrew's. The London College of Surgeons has at last required the study of medical jurisprudence as a requisite qualification for its fellowship; but, for some reason which we cannot understand, not for its license or membership. The success and rapid sale of Mr. Taylor's work may, however, be regarded not only as evidence of its own intrinsic value, but as a strong expression of the feeling of the Profession with respect to the importance of this department of medical education.

For this, and several similar medical works, conceived in the same spirit, and executed with similar ability, we are, it is said, indebted to the sagacity of the enterprising publisher, Mr. Churchill, with whom the idea originated of supplying the student, under the mask of the *Manual*, with works as complete and comprehensive, as such compilations are usually meagre and jejune; and who was fortunate enough to secure the co-operation of writers, in every respect, capable of carrying out his conceptions.

Various attempts have been, from time to time, made to

form a scientific arrangement of the subjects included in a treatise on medical jurisprudence, but to no purpose. None of the proposed classifications afford any practical advantages. A work of this nature must necessarily consist of a series of detached essays, on subjects having scarcely any connexion, in a scientific point of view, and linked together solely by the circumstance of their applicability to furnish assistance in the administration of the laws. Mr. Taylor has arranged them according to their degree of practical importance. In this respect toxicology is, for various reasons, entitled to the first place.

The frequent occurrence of cases of poisoning, which, in these countries, and in England especially, appear to be becoming every day more numerous, is, in itself, a sufficient reason for the great importance assigned to the toxicological branch of legal medicine. Cases of poisoning, Mr. Taylor states, form about *forty-five* per cent. of all those in which the law requires evidence from the British medical practitioner. Besides, it is in the judicial investigation of cases of poisoning that the medical witness appears to the greatest advantage. In such cases, medical evidence is not only requisite, indeed, in general, absolutely indispensable, to the establishment of the fact itself of poisoning, but also frequently serves, in the most unexpected manner, to throw light on many other parts of the case, forming, at one time, the most conclusive part of the chain of circumstances by which the administration of the poison is brought home to a particular individual, and, at another time, establishing the intent with which it was exhibited, when that intent was doubtful; while, on the other hand, the researches requisite on these occasions, are often difficult, delicate, and complicated, and can only be undertaken with safety by the practitioner whom study, experience, and reflection has made at once competent, cautious, and fully aware of the difficulties that beset his path.

It is by no means unusual to hear medical students allege the very difficulty of toxicological pursuits as a reason for not engaging in the study of this subject. "We will never," they exclaim, "have either time or opportunities for acquiring the knowledge requisite for such delicate chemical investigations." Now, there is no doubt that cases of this kind do, from time to time, occur, that require, for their elucidation, all the resources of an able and experienced practical chemist; but the inference, that this branch of professional education ought, therefore, to be abandoned to the chemist, and is not necessary for every medical practitioner, is quite erroneous. Let it be remembered, that every medical man is liable to find himself, at any moment,

involved in the management of a case of this kind, and though not competent to undertake a difficult chemical investigation, he may be able, if he has devoted a moderate share of attention to the subject, to collect information which may be of the utmost value in bringing the inquiry to a satisfactory termination. He will be aware of the necessity of preserving all suspected substances for future analysis, in such a way as that no doubt can be raised with respect to their identity; he will be familiar with the symptoms that characterize different poisons, and be prepared to interrogate the patient with advantage; he will feel the importance of noting accurately the character and course of those symptoms, and the precise period, and the circumstances in which they made their appearance; and so with respect to various other facts which may become of vital importance to the determination of the investigation, but which are constantly overlooked by those who have neglected the previous preparation requisite for the purpose.

The subject of poisoning is treated at great length and with very great ability by Mr. Taylor. It occupies more than a third of the volume; but this is not more than its importance justifies. As this, however, is the department of Medical Jurisprudence which has been cultivated with the greatest industry and success, and as a vast assemblage of facts has been accumulated on the subject, it was not to be expected that the author of a general work of this kind should enter into such full details as if he were writing a treatise expressly on toxicology. At the same time, the work is far from being meagre or unsatisfactory on this head; indeed it is quite as comprehensive as is requisite for the purposes of the student; nothing connected with the subject is left untouched, and those parts which are most important, in a practical point of view, are followed out in detail with much fulness and elaboration. In treating of each poison in particular, the following plan is adopted: its physical characters, degree of solubility, &c., are first described; a brief but striking sketch of the symptoms it produces comes next; this is followed by a very full account of the post mortem appearances; the quantity required to destroy life, and the period at which death commonly takes place, are then investigated; and this part concludes with an account of the treatment. A full detail is then given of the chemical analysis of the poisonous substance, whether in its simple state, mixed with organic substances, or combined with the tissues of the body. This part is printed in a very small type, by which means an immense quantity of information is compressed into a small space. The different steps of the

analysis, and the objections and fallacies to which they are liable, are explained with great clearness and precision, so that a student, with a moderate share of chemical knowledge and sufficient industry, can readily repeat them, satisfy himself respecting them, and in this way acquire such practical information and facility in manipulation as will enable him to undertake the management of many kinds of medico-legal analysis. Indeed, this part of the work appears to us to be in every respect deserving of praise, with one important exception: the treatment of poisoning is, in every instance, passed over in too cursory a manner. Thus the account of the treatment of poisoning with opium occupies less than a page; of course it is imperfect, and we may add, that it is in other respects by no means satisfactory. For example, in reference to bleeding in such cases, we have the following statement, without the slightest explanation or comment: "There is a great doubt whether bleeding is beneficial. From cases reported by Mr. Bullock, it would appear to be decidedly injurious." Now, we can scarcely conceive anything more delusive or dangerous to the student than this curt and aphoristic enunciation of the value of remedial measures in the treatment of disease, which, even though produced by poison, is liable to present such different phases in the course of its progress. Bleeding may be useless, or probably, by favouring absorption, decidedly injurious, in the early stages of this form of poisoning; but when, at a much later period, the fluid pumped from the stomach presents no trace of the poison, and the narcotic sopor is replaced by apoplectic coma and stertorous breathing, bleeding is not only indicated, but has been employed with the most signal success. The objection we have here made to this portion of the work is, in some degree, applicable to every work on toxicology, and has probably arisen from most of our writers taking the French authors as their guides in this branch of science, who, as well in this instance as in reference to practical medicine generally, are in the habit of passing so lightly over the treatment, as to induce one to think they consider the cure of the disease the least important circumstance connected with it^(a).

The next section of the work treats of wounds, and the succeeding one of infanticide, to each of which considerable space is devoted, as in the case of poisoning, on account

(a) It should be borne in mind that students have comparatively little opportunity of becoming acquainted with the management of cases of poisoning, except from books or lectures; the same remark applies to many other medico-legal cases, as drowning, hanging, &c.: hence the treatment of such cases should always occupy a very important place in a work on medical jurisprudence.

of their importance in practice. From the accumulation of cases in Mr. Taylor's possession, extending over a period of fifteen years, a table has been formed, from which it appears that of one hundred cases requiring medical evidence, either before the coroner or in the superior courts of law, there are of poisoning, thirty-five; wounds and personal injuries, thirty-five; infanticide, ten; all other cases, ten: so that about ninety per cent. of all the cases legally investigated involve questions relating to wounds, poisoning, and child-murder. We have already stated our opinion, that, for a student, this essay on wounds is the most useful treatise we possess on the subject; and with respect to infanticide we shall only remark, that Mr. Taylor's valuable researches on this subject, long since published in the *Guy's Hospital Reports*, afford sufficient guarantee for the ability with which it is handled here.

It has been remarked above, that students often allege the inutility of their attempting the study of toxicology, from their want of time and opportunities to master the difficulties it presents: we have endeavoured to shew the groundlessness of this opinion. By an opposite, but equally erroneous train of reasoning, others have been led to believe that medico-legal instruction on wounds and injuries is unnecessary, and indeed absurd, inasmuch as a good surgeon can never find any difficulty in dealing as a witness with such cases. The records of our courts of law, however, speak a very different language. In no class of cases, probably, has the incapacity of medical witnesses been more frequently or more strikingly exhibited, or the interests of justice more seriously compromised by their want of knowledge. He who comes to give evidence in a case of this kind ought, no doubt, to be a good surgeon; but he ought also to be a good witness. This few can be, in the position we are contemplating, without previous study and instruction; and it is the neglect of such study, rather than any insuperable difficulties in the duty itself, though it is certainly often difficult, that has made medical evidence a byword amongst the members of the legal profession.

The medico-legal inquiries, arising out of pregnancy and delivery, are briefly but satisfactorily examined in the succeeding section, which is followed by a short section on rape. Under the head of *Asphyxia*, the nature and value of the medical evidence in hanging, drowning, and the different forms of suffocation, are fully and ably investigated; and the work concludes with an exposition of the medico-legal relations of insanity, in which a great quantity of practical information is comprised in a short space. In expressing our

opinion of the superiority of this work as a guide to the medical practitioner, we should have added, that it will be found equally valuable to the members of the legal profession, who were even more in want of a compendious and accurate treatise such as this; and we have no doubt that, when it comes to be sufficiently known, it will form an inseparable circuit companion of every junior barrister.

Etudes d'Hygiène Publique, sur l'Etat sanitaire et la Mortalité des Armées de Terre et de Mer. Par M. BOUDIN, Médecin en chef de l'Hôpital Militaire de Versailles,—*Annales d'Hygiène Publique et de Médecine Légale.* Avril, 1846. 70 numéro.

Essays on Public Hygiène, and the sanitary Condition of Fleets and Armies. By M. BOUDIN.

IT is useful, as well as interesting, to examine the losses armies sustain under the various conditions of season and situation, of age, race, and nation, independently of the disasters of war, and to collect and arrange documents upon this important subject; we have therefore made a condensed analysis of the laborious investigations of M. Boudin, detailed in the April number of the *Annales d'Hygiène*, which we here present our readers.

Arrian, in his History of Alexander's Expedition in India, l. v. c. 26., refers to the immense losses the Macedonian army suffered by disease. Frederick the Great used to say that fever killed more of his soldiers than seven pitched battles; and in the time of Francis the First, a chivalrous French army of 30,000 men were in a few weeks seriously diminished by typhus fever under the walls of Naples. Thousands of the soldiers, also, of Charles V., of Louis XIV., and of Charles XII., were cut off by a similar disease; and the same occurred during the wars of the French Republic. After the battle of Leipsic, the mortality in the French garrison of Mayence was not less than 25,000, out of 60,000 men; and at Torgau 13,448 deaths occurred in a garrison of 25,000. Even at the present time, during peace, and when much improvement has been brought to bear upon the hygiene of the soldier, do we not see whole armies decimated by typhus fever and diseases of the chest, in a great part of Europe, and by dysenteries and marsh fevers in America, in Asia, and in Africa(a).

(a) The effects of season, climate, and pestilence, upon European troops, are well known and duly appreciated by an Eastern General. In the late Scindian war, so happily and so gallantly concluded by the gallant Napier, the Ameer not only endeavoured to prolong the campaign to the sickly season, and also to draw the British

Among the 80,000 men forming the French army in Algeria, in 1842, the deaths were 69 in 1000 effective men, and 60 in 1843,—“a serious appendage,” writes the author of the article in the *Annales d'Hygiène*, “to our occupation of that country;” but a marked improvement in the sanitary state of the colony has taken place since that period.

In 1840 there was 1 death in 6 patients.

1841	„	1	„	9	„
1842	„	1	„	13	„
1843	„	1	„	23	„
1844	„	1	„	32	„

If we take a retrospective glance at the sanitary condition of the navy, we find that in 1741, Commodore Anson, leaving England with 400 men, and arriving in a few weeks at Juan Fernandez, lost 200 of them by typhus and scurvy; and of the remaining 200, scarcely eight were efficient to work the ship into port; yet in 1772, owing to the remarkable improvement made in naval hygiene, Captain Cook completed his first voyage with the loss of only five men in a ship's company of 112.

On examination of the official Reports of the Health of the British Navy from 1830 to 1836, we find that among 157,770 men there were 2,175 deaths, being 13.8 to the 1000; and this includes the mortality in unhealthy stations, as those in India, and the western coast of Africa.

Comparison between Deaths by Disease and in Battle.

The French army destined for Egypt, from the time of its departure from France, to the end of the year 1804, lost as follows:

Killed in battle, . . .	3,614	Killed by various accidents, . . .	290
Died from wounds, . . .	854	Died from disease, . . .	4,157

Total, 8,915

In the French expedition to the Morea, among 17,000 men, during 7 months, from the 1st September, 1828, to 1st April, 1829, 840 men died by disease alone, which would give an annual proportion of 84.6 in 1000.

In the official documents of the British army, published by Inspector-General H. Marshall, the losses of the British army in Spain, for a period of 41 months, from January, 1811, to

army into unhealthy positions, but in their various Dhurbars or proclamations expressed their reliance on the “river's bank,” the “sultry swamp,” the “scorching desert,” the “inundation,” the “fever,” &c.

May, 1814, in a force of 61,511, were 24,930 deaths by disease, and 8,889 in battle; being for the former, 118.6 in 1000, and for the latter, 42.4. Soldiers absent from their corps on account of disease, 225 in the 1000, reducing the army to one-fourth of its effective strength. "But as British officers are accustomed to lead on their men to warfare, the mortality in battle was of course considerable." Sixty-six officers were killed in every 1000, in battle, and thirty-seven died by disease.

In the four battles of Talavera, Salamanca, Vittoria, and Waterloo, there were 39 officers killed in each 1000; and of soldiers and non-commissioned officers, 31.1 in the same number. And in the British navy, from January, 1780, to April, 1783, the deaths from various diseases were 3,230 men; killed in battle, 640; and died of wounds, 500. Thus shewing, that in the navy, as well as in the army, the deaths by disease greatly exceed those by warfare.

Annual Proportion of Deaths among 1000 in the British Army.

	By wounds.	By disease.	Total.
Expedition of Walcheren, August, 1809, .	16.7	332.0	348.7
Peninsular war, from Jan. 1811, 61,511 men, 42.4	118.6		160.9
Same period, officers,	66.0	37.0	103.0
In Burmah (year 1824),	35.0	450.0	406.0

Eastern nations understand, in a military point of view, the devastating power of marsh exhalations, and employ them as a means of destroying hostile armies. It is asserted that the Arabs about Bussora, when at war with this town, form an inundation around it, well knowing that fever will soon destroy their enemies within it; and M. Aubert Roche mentions that among 18,000 Aronouts encamped on the pestilential shores of the Red Sea, scarcely 4000 remained at the expiration of ten years.

Whole armies have been almost annihilated, both in ancient and modern times, by marsh exhalations, without ever having fought a battle: for instance, the French army, in 1828, at Navarino, were decimated by fever and dysentery, while some regiments encamped at a short distance from them on the hills, remained in good health.

The effects of marsh poison were disastrously exhibited during an epidemic season, in August, 1809, on the disembarkation of the British army at the island of Walcheren. In a force of 39,219, the number slain by the enemy was 217; and from the 28th of August to the 23rd of December, 4,175 died, poisoned by marsh emanations.

Diseases and Mortality of Troops serving in their own Country.

It is desirable to ascertain the mortality on home service (which likewise affects civil life) in order to arrive at a precise appreciation of the effects of climate on the human body.

Disease and mortality materially differ in the several countries of Europe. Thus in

1842.	Registered Deaths.	Annual Mortality in the 1000.
France,	836,152	23.97
England (a),	349,519	22.07
Austria (part of)	682,208	22.95
Prussia,	26.58
Russia (part of)	1,856,183	35.90

So that the least mortality is in England, and the greatest in Russia. We have reason to suppose that the mortality is on the decrease in France and Prussia; in France, from the year 1817 to 1836, it was 25.2 in 1000; in Prussia, from the year 1820 to 1834, 28.0 in 1000; and in Sweden, from 1810 to 1829, it was 24.6 in 1000.

If we examine the mortality of the military population of France, it gives 19.4 deaths in the 1000, being twice as great as occurs in civil life in the same country. In England the deaths are 9.91 in the 1000, which is less than half of the annual mortality of the troops in France. This, however, has been exceeded in the Piedmontese army, in which, Count Morozzo states the mortality as 90 in 1000; the period of service being from eighteen years of age to fifty-eight.

Although in the French army the mortality of the private soldier is 19.9 in 1000, that of the non-commissioned officers does not exceed 10.8; in passing on to the Royal Guard we see the effects of improved circumstances marked in a very decided way, the mortality in that corps falling to 14.7 generally, which in the infantry was 19.7; so that the influence of good living upon the health and longevity of soldiers is remarkable, whether compared with the different armies; or the different grades in each army in particular.

In the Prussian army of 110,000 men, the average number of sick in 1000 was forty-four during ten years, from 1821 to 1830; and the mortality was very nearly the same as that of the adult male population of the entire kingdom from twenty to twenty-five years old. In the year 1840, the male population, from twenty to twenty-five years old, were 692,704 ;

(a) To this we may add that of Ireland, as 1 in 32.12, or 31.13 in 1000. See Report on the Tables of Deaths in the Census for Ireland for 1841.

the mortality was 6,853 deaths in that year: the proportion of deaths one in 101, or, in round numbers, ten deaths in every 1000 inhabitants.

The Saxon army, of 12,533 men, has less mortality than any other, the numbers being 4·5 annual deaths in the 1000 of effective force; but this may arise from chronic cases being discharged the service, or granted a long leave as convalescents.

British army.—Results for seven years, from 1830 to 1836, inclusive. The mortality of the guards in England is, to that of the ex-royal French guard, as 21·6 to 14·7, or as 3 to 2.

The annual proportion of mortality for thirty-two years, of the British army serving in Ireland, from the year 1797 to 1828, is 15·5 in 1000(*a*).

In the English Metropolitan Police Force of 23,698 men, during a period of seven years, from 1830 to 1837, there were 211 deaths, giving an annual proportion of nine deaths in the 1000,—the patients not exceeding an average of twenty-six a day in a force of 3300 or 3400 men(*b*).

Auxiliary British Troops serving in their native Country.

The annual mortality in 1000 is as follows :

Maltese Corps, serving in Malta,	9 in 1000
Hottentots, serving in the Cape of Good Hope,	12·5 „
East India Company's Troops at Bengal (natives from the northern provinces),	13 „
Army of Madras (natives of Peninsular India),	15 „
Natives of Ceylon, serving at Ceylon,	25·8 „

In comparing this mortality with that in the French army, we are induced to ask, why is it so great in the latter? It may be enough at present to observe, that France is the only country where the recruiting of the army is not an exclusively military proceeding, and is not intrusted to those of the army, who are judges of what should constitute a desirable soldier. The consequence is, many are finally discharged upon revision,

(*a*) Compared with the last twenty-eight years, this period, from 1797 to 1828, would, no doubt, alter the rate of mortality considerably. During the former period, however, we had civil war, and several terrific outbreaks of epidemic fever; besides, the ordinary active duty of troops in Ireland was much greater, there being no police at that time: and among the causes of mortality in troops serving in Ireland in the early part of this century, may be included “still-hunting”—the very severe duty required, principally at night, by the Excise, to prevent illicit distillation.

(*b*) In the Dublin Metropolitan Police Force, of 1126 men, the mean annual mortality for nine years has been something less than five in round numbers; but then it must be remembered, that as soon as incurable disease, or confirmed ill-health occurs, the patients are invalided.

for disabilities contracted prior to enlistment, and even this revision is far from remedying the evil in its whole extent.

Army of the United States of America.—In 1840 the United States government published an account of the diseases and mortality of their army. In this important document the following results are given for the American army during a period of ten years, from 1829 to 1838, inclusive:—

	Force.	Admitted to Hospital.	Deaths.
Region of the North, . . .	32,242 . . .	32,154 . . .	281
Region of the South, . . .	24,978 . . .	54,411 . . .	823
Mortality—North, 18·8 deaths in 1000 effective men.			
South, 52·3	do.	do.	
Centre, 44·2	do.	do.	

Thus, of all troops serving in their native country, the least mortality is found in the Malta corps, i. e. 9 in 1000; and the greatest in that of the American army in the South, i. e. 53·3 in 1000; but this average can hardly serve as a type, for men born in the United States may be considered as foreigners in the region of the South; and the climate of the latter, which may be considered as tropical, together with marsh effluvia, are very generally fatal to white people.

Having now seen the normal mortality of different armies serving in their native country, let us next proceed to examine—

The influence of foreign climates on the sanitary state of troops serving out of their own country:

During a period of ten years in Great Britain, in a force of 47,061 men, there was an average of 721 deaths.

In the several British possessions, remote from Great Britain, in a force of 53,153 men, the average was 3037 deaths.

These results give an annual average in 1000 men of fifteen deaths for Great Britain, and fifty-seven deaths for foreign possessions; that is, four times as many deaths abroad as at home.

Then, again, there is an oscillation in the 1000 between a minimum of 14·1 deaths in South Australia, and a maximum of 483 at Sierra Leone.

There is a remarkable coincidence between increase of temperature and that of mortality; and no doubt marsh and terrestrial effluvia exercise a powerful influence in this respect.

The annual mean of mortality in all the British extra-tropical possessions is 21·1 deaths in 1000; in the British possessions, situated within the tropics, it is three times as great, being raised to 63·4 deaths in the 1000; and in the United Kingdom it is 15·9.

	Mortality.
This gives Great Britain,	1
Extra-tropical British possessions	1.3
Intra-tropical	4

The mortality of coloured troops of the several races is augmented, on service out of their own country, to 35.8 in 1000; while, in their native soil it is 15.2, being about 2.28 to 1.

The Sepoys, recruited from the northern and hilly provinces of India, are decimated in the alluvial plains of that country, quite as much as the Europeans; so that the probability of maintaining health and longevity is greatly in favour of troops serving in their own country.

It should also be mentioned, that there is considerable variety or oscillation in disease, in each year, in hot climates; and also in the mortality; and this varies at the several stations, thus; in the year 1819, at Tobago, 222 deaths occurred in 1000; at St. Christopher's, same year, only nine in 1000; in the year 1828, at Dominica, forty-three in 1000, but in the year 1817 it was raised as far as 559 in 1000. Contrast this with British troops serving in Ireland from 1797 to 1828, for these thirty-two years, thus:

Mean proportion,	15.5 in the 1000.
Maximum,	20 „
Minimum,	10 „

In the published returns of the health of the navy in 1840, among 157,770 sailors, during a period of seven years, from 1830 to 1836, both inclusive, there was a total of 210,272 sick, and 2175 deaths: of the invalided, about 5190; and in this department of the public service, it is also true, that the least mortality is on home duty, and the greatest abroad, with the remarkable exception of South America, which is not easily explained.

The oscillations as to maximum and minimum of mortality, are not so wide in the naval service as in the land service.

Minimum, . . . 7.7 South America.

Maximum, . . . 22.5 Cape of Good Hope and coast of Africa.

The extent of space allotted to each individual, on board each description of ship, is an important item in constructing comparative tables of the health of the several vessels. There is a great difference between the mortality in the navy and that in the army, not to be accounted for merely by the supposition of the healthy life of the former; there are many other

reasons which might be referred to, as the shorter period of service of the sailor, the larger quantity of diet, &c.

Annual Proportion in 1000.

NAVY.		ARMY.	
Disease.	Deaths.	Disease.	Deaths.
1,083	9.3	981	18

Selection of Locality for Garrisons, and proper Stations in hot Climates, with a View to protect the Health of Troops.

When we consider the mortality of troops in some tropical countries, and that the annual average of deaths, during a period of twenty years, has been :

In 1000 men.		In 1000 men.	
At Badulla, in Ceylon, . . .	97	Bahama,	200
Spanish Town, Jamaica, . .	177	Sierra Leone, . . .	483

It gives a serious interest, in every point of view, to this subject, and ought to lead us to devise means, if possible, to remedy the evil. Certain it is, that military necessity sometimes overbears every other, and it may be imperatively required to dwell, at least for a time, in unhealthy localities, but this ought to be a rare mode of soliciting death, and it is a happy circumstance that we most frequently have it in our power to select healthy sites for troops.

At the same time, it is strange to find, with such resources from chemistry, meteorology, and natural knowledge, as we now have, how little even the thermometer is consulted before undertaking important enterprizes, which lead to extensive mortality without such precise information.

In the French army in Algeria, in 1839, the proportion of deaths in the 1000 men treated in the several hospitals was: at Boufairk, twelve deaths in 1000; at Djidzeli, 121; and at Philipville, 122. These results, however, are from the observations of one year only, and there was frequent transfer of patients, at that period, from one hospital to another.

British Army, Ionian Islands (from 1817 to 1836).

Deaths.		Deaths.	
Corfu,	20.1 in 1000	Ithaca,	26.1 in 1000
St. Maura,	46.0 „	Zante,	32.0 „
Cephalonia, . . .	30.5 „	Cherigo,	20.1 „

shewing that there is often a great difference in the amount of mortality in places very near to each other.

Within the tropics there is a still more decided contrast in the salubrity of the several islands.

From 1817 to 1836, in a force of 4,333 men, the annual mortality in 1000 men was :

Antigua, Mont Serrat,	40·6	British Guiana,	84·0
St. Vincent,	54·9	Trinidad,	106·3
Barbados,	58·6	St. Lucia,	122·8
Grenada,	61·8	Dominica,	137·4
St. Christopher,	71·0	Tobago,	152·8

Thus the mortality fluctuates between 40·6 and 152·8

At Jamaica the happiest results have taken place from stationing troops in localities according to their relative and known salubrity. In this island there is a marked difference between the minimum and maximum of the mortality. The following is the proportion of deaths, for a period of twenty years, at the several stations:

	Mortality.
Phoenix Park, from 1833 to 1836,	29 in 1000
Montpellier, do.	30
Maroon Town, from 1817 to 1836,	32·5
Mandeville, from 1833 to 1836,	35
Fort Augusta, from 1817 to 1836,	78·3
Lucia, do.	91
Stony Hill, do.	96
Falmouth, do.	110
Port Royal, do.	122·3
Up-Park Camp, do.	152·8
Port Antonio, do.	162·5
Spanish Town, do.	177·7

In different parts of the island, not mentioned in the above Table, the mortality is said to be as much as 500 annually in the 1000; but at Maroon Town the average is 32·5; and when the deaths, from diseases contracted at other stations, are deducted, it comes down to thirty-two, which is the same as that of the Guards in London, shewing the great importance of a proper quartering of troops. They are not now decimated by marsh effluvia since they were removed to the hilly regions, 2,000 feet above the level of the sea(*a*).

A negro regiment which is quartered in the plains, has its sanitary state not impaired. Is there an immunity in this race against the destructive action of marsh malaria?

(*a*) On this subject we beg to refer our readers to an able lecture by Dr. Graves on the influence of race and climate on disease, delivered during his presidency of the College of Physicians.

The posts of Up-Park Camp and Stony Hill, the former 2000, the latter 1360 feet above the level of the sea, are not as healthful as those of 2000 feet elevation.

Ceylon.—At Jamaica we see an elevation of 2000 feet produces a sanitary condition among the troops, and keeps them tolerably free from tropical diseases, so that the mortality is almost similar to that of England; but this does not seem to be the case at Ceylon, in the Eastern hemisphere, thus:

	Annual Mortality in the 1000.	Effective Strength.
Salle	23·0	182
Mucia Elia	24·0	116
Ratna poora	42·7	54
Colombo	51·9	920
Kandy	60·7	433
Trincomalee	91·4	284
Badulla	97·1	75

The above is a table of deaths in the British army, during a period of about twenty years, shewing that the places—as Kandy and Badulla—situated 1676, and even 2100 feet above the level of the sea, do not give any immunity from tropical disease, and would rather seem to increase the mortality.

It is remarkable that the health of the negro is not so much benefited as that of the European by elevated situations; at Niucra Elia, in Ceylon, in the year 1835, of fifty-one negroes stationed 6200 feet above the level of the sea, fifteen died within the year, which would give a proportion of three hundred in the thousand; the British garrison at the same time, in the same situation, only losing twenty-four in the thousand(*a*).

At Boston, in North America, the mortality in the negro inhabitants is three times as great as that of the white population.

The excellent health of Europeans stationed in an elevated position, on quartz-rock, gneiss, and granite, at the Cape of Good Hope, shews the importance of attending to “medical geology,” and would go to prove how salubrious warm climates are, that are not exposed to marsh miasmata.

Conclusions.—We may deduce the following general conclusions from the facts above enumerated.

1st. The losses armies experience under the influence of disease far exceed those in war, and under the enemy’s fire. In the Walcheren expedition, in 1809, the mortality of the

(*a*) So small a number as fifty one is not, however, a fair criterion by which to judge.

British army was 16·7, deaths by wounds, and 332 by diseases, in each thousand.

2nd. The lowest rate of mortality is among troops on home service, and it increases in European armies as they approach the equator. Among negro troops, on the contrary, the mortality augments remarkably as they are removed from the tropics.

3rd. Even on home service the mortality in European armies is greater than that in civil life. In the tropics, as at Sierra Leone, the military mortality by disease is 483 in 1000.

4th. In localities that are nearly adjacent, a great difference is frequently found in the mortality, a fact deserving of serious consideration in forming military stations, and quartering a garrison, or in building barracks or hospitals.

5th. Within the tropics the annual number of deaths fluctuates largely from one year to the other, so that the mortality of one year is not a criterion for that of another.

6th. In tropical countries of an unhealthy character, the judicious selection of a position in an elevated situation is often sufficient to maintain the health of Europeans in a state nearly as favourable as if at home.

7th. The geologic condition of the country exercises a decided influence, not only upon the sanitary state and mortality of armies, but also upon the existence or non-existence of maladies that disqualify for military service.

8th. The increase in the mortality of armies, particularly in warm climates, is produced, in a great degree, by the marsh effluvia of the situation occupied.

9th. The mortality of armies all over the globe far exceeds the mortality of the navy.

10th. In the temperate regions of Europe, dense populations situated near garrisons, lead to disease among troops, and augment their mortality. The amount of population in the different quarters and streets of a large town should be seriously considered, previous to selecting positions for barracks or hospitals.

11th. Numerous facts militate against the supposition that the health of European troops is gradually ameliorated and acclimated in hot countries by a prolonged residence in them.

12th. In a military point of view, the knowledge of the increase of disease at certain seasons in different parts of the globe, and the several climatic and cosmic influences that operate on the health of armies, is of immense interest, and the subject has not by any means hitherto obtained the attention it deserves.

13th. The pathogenic influence of seasons upon troops is connected with the quality of the ground, the latitude, longitude, and elevation of a place, its position in the northern or southern hemispheres, and the race and nation of the soldier.

14th. In all countries where the influence of age has been studied hitherto, the least mortality has been found to be among soldiers aged from eighteen years to twenty-five.

15th. The nation and age favour or neutralize the pathogenic action of climates, so that under the influence of identical circumstances, troops of a distinct race and nation may suffer and die in different proportions, and of different diseases.

Lectures on the Urine, and on the Pathology, Diagnosis, and Treatment of Urinary Diseases. By JOHN ALDRIDGE, M.D.,
Lecturer on Chemistry at the Medical School, Park-street,
&c. 8vo. pp. 80.

THERE is probably no fluid which has received so great a share of attention from physicians and chemists as the urine; the former endeavouring by its assistance to characterize certain diseases, producing in it either chemical or physical changes; and the latter endeavouring to separate from a complex liquid the proximate principles peculiar to organization, whether healthy or diseased. The analysis of urine forms an early epoch in the history of animal chemistry; and from the first experiments of Rouelle and Scheele, to the later researches of Simon and Liebig, every chemist of celebrity has added his contribution to the progressive elimination of its constituents; and yet, notwithstanding the rapid improvements in the apparatus for, and processes of organic chemistry, the perfect enumeration of the composition of this liquid is still a desideratum, and in the language of the most laborious of experimenters, Berzelius, "a complete analysis of urine has yet to be performed." Sufficient, however, is now known, both of its regular and abnormal constitution, to warrant us in drawing inferences and deducing practical rules for the medical practitioner; and it is to facilitate the study and diagnosis of urinary diseases that our author has published this little work, which is a collection of his lectures, which have already appeared in the *Dublin Hospital Gazette*, and of some papers which appeared in the former series of the *Dublin Medical Journal*: the whole forming an abstract of what is of importance to be known on this subject, along with some peculiar views of his own. The matter is clearly and concisely arranged, and we strongly recommend the perusal of the work to all our readers, as its value

depends not only on its chemical but its pathological research and observation.

In giving the constitution of healthy urine, as the starting point, Berzelius' analysis has been selected. This we regret, because it does not deal fairly with either chemistry or physic to present us with an analysis made thirty-seven years since, when manipulation was imperfect, and which analysis has served its turn by appearing in every essay and system of physiology and chemistry from that time since; and also, because it never represented healthy urine; its specific gravity was undetermined; it deposited a cloud shortly after being passed, and, with the exception of one set of experiments (Lehmann's), the quantity of solid matter is double the amount given by all the later analyses. Numerous analyses have been put forth lately by Marchand, Simon, Lehmann, Lecann, and others, from which our author might, we think, have selected more advantageously; but it is quite possible, that Dr. Aldridge may not attach the same value to these analyses as to the older ones of the great father of analytical chemistry.

For comparison sake, we present the mean of six analyses of healthy urine by Simon, from which it will at once be seen how much lower are the proportions than that of Berzelius.

Spec. gravity, 1,022·5.

Water	961	Urea	16·60
Solid matter	39	Uric acid	0·61
	—	Fixed salts	8·27
		Organic matter and loss	12·07

The fixed salts were chlorine, sulphuric and phosphoric acids, potash, soda, lime, and magnesia.

The constitution of the organic or extractive matters of the urine is involved in obscurity; as yet, according to Dr. Aldridge, a portion is soluble in alcohol, and yields by fermentation acetic acid, while the portion insoluble in that menstruum does not yield by fermentation any acetic acid. The soluble portion he believes to be an azotized substance, with a body analogous to sugar or dextrine; and he leans to the opinion that a form of sugar is present in healthy urine; and a few of Bouchardat's observations tend to the same conclusion.

Our author's directions for testing and examining urine we look upon as most judicious, and leading to delicate results, and a great desideratum to men in practice, whose attention has been little drawn to a subject which formed no part of their curriculum of education. The determination of the specific gravity of urine should be the first matter, as much information is gained therefrom, and the proper course of investigation pointed

out. The connexion between density and quantity of solid matter is intimate, and may be deduced by Christison's formula, which is given at page 8, thus :

"Dr. Christison has calculated, that for every unit added to the density of water, taken as 1000, the quantity of solids in solution is equal to 2.33. Thus, if the specific gravity of a specimen of urine be 1.010, we can find the amount of solid matter in solution by the following equation :

$$2.33 \times 10 = 22.30$$

If the density be 1020,

$$2.33 \times 20 = 46.60$$

will afford you the sum of solid constituents."

This mode is much more correct than Becquerel's, in which the solid matters were always over-estimated.

For testing the presence of sugar, Dr. Aldridge recommends Moore's plan of boiling the urine with an equal volume of water of potash; if sugar be present, the liquor will assume a deep porter or beer colour in proportion to the quantity. The simplicity and facility of applying this test are, we believe, its recommendations; for we do not look upon it as equal in delicacy to Trommer's test, which consists in evaporating urine, and treating the syrupy residue with anhydrous alcohol; dry carbonate of potass is then added, the solution agitated, and the layer of alkali allowed to subside; a solution of sulphate of copper is added to the liquid, and heat applied: if sugar be present, a yellow or yellowish brown turbidity is produced. The deposits in urine, so troublesome generally to distinguish, are easily so by the microscope, and the characters of each sediment are concisely given in this work.

The pages devoted to pathology are full of interest. We give the following passage from p. 52:

"I have told you that the urinary conduits are lined by epithelium; it is together with this epithelium, itself an albuminous exudation, that the solid elements of the urine permeate through the walls of the capillaries, which form the interior plexus; and it is from between the scales of the epithelium that these solid constituents are washed out by the watery current flowing from the Malpighian glandules. There is a disease, however, in which the albuminous element of the blood no longer exudes to form solid scales of epithelium, but continues liquid after its secretion, and dissolves in the water of the urine, or becomes organized into plastic lymph corpuscles, and either chokes up the trajet of the conduit, whose form they collectively assume, and presents to the eye the appearance of whitish or yellowish granulations, mottling the cortical substance, distending it, and thus producing pressure upon the tubuli uriniferi, which in time become absorbed, or as frequently occurs at the

commencement of the disease, distinct tubes of false membrane, miniature analogues of those sometimes expectorated in croup, are separated from the conduits and discharged with the urine. This is the form of renal disease usually named after Dr. Bright, and to which so much interest has been latterly attached."

There are some pathological views of disease, peculiar to our author, scattered through the book, which our limits do not allow us to enter upon. Under the lecture on treatment, oxalate of lime deposit is noticed, and the proper treatment pointed out. It is a symptom or change in the urine, more frequently occurring than was suspected, and has been often treated as gleet or prostatic disease, of course ineffectually.

We again strongly recommend the perusal of this little work to all those who wish to treat an obscure class of affections, not upon mere symptoms, but on sound pathology, and the ordinary principles of therapeutics; and we congratulate our fellow-countryman on the additions which he has made to this most necessary department of practical medicine.

1. *Military Miscellany, comprehending a History of the Recruiting of the Army, Military Punishments, &c.* By HENRY MARSHALL, Deputy Inspector-General of Army Hospitals, &c. London, 1846.
2. *The Medico-Chirurgical Review and Journal of Practical Medicine*, for July, 1846.

It is with gratification and pride, that we direct the attention of our readers to an article in the July Number of the *Medico-Chirurgical Review*, on the subject of Military Punishments. We congratulate our justly-respected contemporary for being the first to point out that, among other evils, the system is a degradation to the Profession of Medicine. The article in question is a review of Staff-Surgeon Marshall's *Military Miscellany*. We were before aware of the sentiments entertained by Dr. Marshall on the subject, and we trust that the opinions of one of the most experienced and distinguished medical officers in our army, will be received by the government and the country with the respect which is their due. It was our intention to have written fully on this painful but important subject, but we rejoice that so able and influential a writer has anticipated us. We believe that the time is not far off when the abolition of this stain upon our military code will be wiped away; and we feel that the glory of having effected this great social reform, will

be earned by that profession which has shewn itself not only capable of contending with the ills to which flesh is heir, but with the prejudices, errors, and diseases of society itself.

In the present time, when every day brings forward some genuine reform, there remains one withering blot in our social system,—namely, the degrading, brutal, and utterly ignorant system of military punishment.

It cannot be too often proclaimed, that the British soldier,—the prop of our national glory, the defender of our homes, our altars, and our liberties,—who is ever ready, whether in the icy fields of Canada or on the scorching sands of India, to pour out his blood for his country, and to brave death, whether it comes by the sword or by more sweeping disease,—is subject to the vilest, and the most barbarous of degradations: he is often scourged to death, for an offence against a conventional system; and this, after eighteen hundred years of Christianity upon earth, and without the possibility being afforded to the victim, of righting himself by an appeal to those laws, for whose defence he was ready to lay down his life.

The catalogue of military tortures is long and black; but it would seem as if all were embodied in the present system of flogging. It has the advantage of requiring no complicated apparatus, and well fulfils its purpose—degrading the judges, the executioners, the victim, and the spectators together. The sufferings and the shame inflicted,—other miseries are to follow. If the soldier faints from agony before the full measure of his punishment is meted to him, he may by the exercise of medical skill be cured of his wounds, but with no purpose but to have them inflicted again; yet this is not all, he may die, and does often die of mere collapse; or if reaction occur, he is attacked with fever. In hot climates, mortification takes place, and his wide wounds become the nidus of myriads of insects; the bones are denuded, and paralysis and other diseases result.

Some years have passed since an example of the effects of this system came under our own observation. The subject was a native of England: he was the hope and support of his family, and was enlisted during intoxication; on coming to his senses, he found himself a soldier, a prisoner, and an exile: he was marched to one of the great military depots, and there he deserted, but was apprehended and punished. He was afterwards sent to join his regiment in the West Indies—there he again attempted to regain his liberty, and was again apprehended, tried, and sentenced to receive 400 lashes. The punishment was inflicted under the burning sun of Jamaica, and he fainted before he received the half of his appointed torture. His

wounds were healed in hospital, and the remainder of the punishment inflicted. He had then become a desperate man, and his health completely broken. On his return to Europe he committed other crimes, and was then handed over to the civil power, found guilty, and condemned to transportation for life, but while waiting for the fulfilment of his sentence he began to die; consumption had set in, he was reprieved, and removed from the gaol to one of our metropolitan hospitals, when it was found that empyema and pneumothorax had occurred, and he at last sunk, broken-hearted, demoralized, and destroyed.

The following are some of the duties which the medical officer is compelled to perform:—

I. He has, as in the case of suspected malingerers, to report on the question of guilt or innocence. He may be in error; but if he declares that the disease is simulated (often one of the most difficult of medical questions), he becomes the accuser.

II. He is next to report whether the soldier's health is in such a state as will enable him to bear the punishment; it may be many hundred lashes.

III. He is bound to stand by during the torture; but his real business is not to save from suffering, but to declare the farthest point to which it can be borne. He is then the head executioner.

IV. The sentence cannot be fully inflicted; and he is then to exercise the god-like gift of healing in the shortest space of time, but only to report when, in his opinion, the victim may be tortured again.

Now it is time to call on the medical staff of the army, from the highest to the lowest, to come forward, and with one voice to declare that these are functions they will not fulfil.

Such an expression of opinion cannot be resisted, and the time is ripe for it. Nay, let but one man bravely declare that he will not disgrace his profession by making it a convenience to the executioner, and we promise him the civic crown, and the sympathies and applause of all good men. We shall return to this subject, and we earnestly invite communications upon it.

The concluding observations of our contemporary are well worthy to be remembered:

“And surely there is no occupation in which medical men can more profitably fulfil their beneficent *mission*, than in using all their professional influence and authority to plead the cause of the suffering and oppressed, against the heartless neglect or tyrannical severity of irresponsible task-masters. Of recent years, the fruits of enlightened medical phi-

lanthropy have been gloriously displayed in the changes already effected in our prisons and lunatic asylums, &c., and in the improved general economic treatment of our pauper population. May the same good spirit continue to animate every member of the profession, in whatever sphere he may be placed! It is thus only that our calling may justly claim to itself the proud distinction, that has been assigned to it by the eloquent orator of antiquity, of being 'an art almost divine.'"

While the foregoing observations were going through the press, the July Number of the Edinburgh Medical and Surgical Journal has reached us, and we rejoice to find that this deeply interesting subject has been ably handled there also.

Physiologie Pathologique, ou Recherches cliniques, experimentales, et microscopiques sur l'Inflammation, la Tuberculisation, les Tumeurs, la Formation du Cal, etc. Par H. LEBERT, Docteur en Médecine, etc. Accompagné d'un Atlas de vingt-deux Planches gravées. Paris, 1845.

Pathological Physiology, or Clinical, Experimental, and Microscopic Researches on Inflammation, Tuberculization, Tumours, the Formation of Callus, &c., &c.

It is a pleasant thing in science, when the cultivation of a new mode of investigation is found to confirm the results to which we had been previously and independently led; to be informed, that the path which we have hitherto pursued has been in the right direction; that we journey with no greater load, of an useless nature, than the dust and mire incident to travel; that the mere mechanism which we adopt, to assist our advance to the end proposed, will indeed facilitate our further progress, and elevate us to a point of more enlarged view, but will not render it necessary for us to retrace our steps, or discard those things which we had collected and treasured during our previous march;—to learn these things is calculated to encourage us in the continuation of our labours, and to strengthen us in the belief both of truths already achieved, and others still attainable. These agreeable confirmations have been eminently derived from the applications of chemistry and microscopy to pathology. We do not know of a single received fact which has had to be discarded on their information; and although they open to us vistas of discovery through which we could not penetrate without their aid, they leave, in a great measure, undisturbed, the store of materials which had before been accumulated. The light they lend adds to the original brilliancy, without diminishing its steadiness.

Through the labours of Baillie, Bayle, Lallemand, and Corvisart, Laennec, Bertin, and Andral, Carswell, Lobstein, and Cruveilhier, as well as many others, morbid anatomy has acquired a perfection, perhaps equal to that of any of the natural sciences. The unassisted senses could tell us little more of the sensible results of diseased action than what these observers had described. Unsatisfied with investigating and recording the gross phenomena revealed by dissection, Andral led the way to an analysis into elementary lesions, and then, by tracing the same lesions in different tissues, and detecting the synthetical combinations produced by aberrant life, what Plato would call "perfect ideas" were attained, and morbid anatomy became a science.

But the strictness which this analysis required, manifested the insufficiency of merely sensible characters. Sight and touch, when unassisted, were found incapable of unravelling the complications of diseased nutrition and secretion, or determining the limits of analogous and heterologous growths. Hastings, and some others, had already called the microscope to their aid for revealing the phenomena of sthenic hyperæmia; and Müller soon availed himself of the assistance of this instrument to distinguish the varieties of malignant tumours. Within the last few years, Valentin, Schwann, Eberle, and Raciborski, Donné, Quevenne, and Lebert, with many others, have cultivated the fresh field of microscopical pathology with considerable diligence and success.

As in other instances, in which novel and powerful aids have been offered to investigation, unwarranted expectations have been formed of the results to be obtained, and unmerited discredit has resulted from these expectations not having been realized. The microscope is, at best, only an aid to the sense of sight, by means of which we can examine small solids too minute to be studied by the unassisted eye: but one transparent liquid cannot by it be distinguished from another; nor can the difference between solids of the same size and form be detected, although their composition may be totally dissimilar. Thus, the liquor sanguinis, the transparent fluid in which the red globules flow, and out of which are formed all the tissues, and, either immediately or remotely, all the secretions, may vary so much in different cases of disease as, at one time, to form pus, at another tubercle, and at a third cancer; but the microscope can perceive no difference in this fluid under these different circumstances. Again, the globules of pus and mucus are similar in appearance; they are, as Donné says, "medals from the same mould;" yet we know, from other

sources, that they are actually different in their nature. Above all, we should avoid blaming the microscope for not shewing us alterations in one organ, because there exists a lesion in another; thus it has been brought forward as a reproach to microscopy, that the blood globules are not altered in typhus fever, a disease in which we have every reason to believe the blood is changed. But why, supposing a lesion of the blood to exist, ought the globules to be altered? Little oxygen carriers, themselves the products of muscular waste, they have nothing to do with nutrition or secretion, those functions being executed by the liquor sanguinis, in which they merely swim. It is then, let it be remembered, the minute solids of the organism which alone can be examined through the microscope; the office of this instrument being to make known to us alterations in the forms naturally existing, or the super-addition of novel and unusual elements, the products of diseased action.

Now, these minute solids, which it is the business of the microscope to demonstrate, are cells, usually nucleated, and either polygonal, or drawn out into fibres. Treviranus was the first who shewed that the vesicular tissue of animals was analogous to that of vegetables,—that is, consisting of cells, with distinct walls, congregated together, and more or less compressed, but not so much so as to obliterate completely the spaces between them, minute passages being formed wherever three vesicles were approximated. These intercellular passages constitute channels through which a diffused circulation takes place in all animals; this kind of circulation alone existing in the radiatæ, while, in the other classes, vessels are superadded to facilitate the conveyance of fluids to distant organs. In animals with red blood, the globules can only permeate through the largest intercellular passages or capillaries, while the liquor sanguinis can force its way through channels the most minute. In the former terminate the arteries, and from them arise the veins: from the minute and colourless intercellular passages originate the lymphatics, which thus, to borrow the language of Dr. Graves, constitute, “the veins of the white tissues.” But the parietes of these vessels, whether arteries, veins, or lymphatics, are themselves formed by an aggregation of cells, which have minute intercellular passages existing between them; so that the contents of those vessels can ooze out laterally, by either of two methods, by filtration through the membrane of the cells which form their walls, or by penetrating through the intercellular passages existing between these cells. By the former mode it is obvious solid globules cannot escape, but it is not so evident that they may not,

occasionally, be permitted to traverse the minute channels just alluded to.

If a ligature be placed upon a vessel, the intercellular passages that it arises from, if a vein, or those to which its branches are distributed, if an artery, become distended; red globules are thus enabled to penetrate, where otherwise they could not gain admission; and in disease it is not difficult to comprehend that it may sometimes happen that the lateral intercellular passages of a vessel may acquire a calibre sufficient to permit the transit of globules. We make these remarks, because the tendency at present amongst pathologists is to regard all hæmorrhages as resulting from the rupture of vessels,—not indeed the bursting of large veins, according to the old notion, because that is directly opposed to the statistics of morbid anatomy; but it is conceived that the lesser capillaries must suffer rupture too minute for observation, to permit of the escape of globules. This hypothesis, however, requires further investigation.

Ascherson observed, that when oil drops are permitted to rest in an albuminous solution, they quickly invest themselves with a membranous pellicle. Schleiden and Schwann applied this observation to the construction of an hypothesis of organization. All the parts of a living being are found, in the field of the microscope, to be studded with minute particles, varying in diameter up to .0025 of a millimeter, and called by Lebert "molecular granules." Frequently these granules are observed to be contained within membranous cells, and in that case are often contained in a minute cyst, attached to some part of the cellular parietes. They then constitute what are called "nucleoli," and the cyst in which they are contained is called a nucleus. Schwann indicates as the type of a cellule, a membranous vesicle, in which is contained a nucleus, and in that a nucleolus; but, as Lebert remarks, this form is by no means universal. Schwann also thinks that the nucleolus is the primitive formation, surrounding which the nucleus becomes deposited, and lastly the cellular parietes become formed on the surface of the nucleus; but frequently we may observe several nucleoli in one nucleus, and at other times nuclei without any nucleoli; again, it is sometimes manifest, by the observation of numerous cells, that the nuclei are formed, occasionally, subsequent to the cellule; and sometimes the kind of development observed by Schleiden in the vegetable kingdom may be remarked, in which the cell-wall forms on only one side of the nucleus, at first presenting an appearance like a watch-glass, seen sideways, although by degrees it grows to invest the entire of the nucleus, from which it remains separated by the imbibition of fluid.

Some varieties of globules do not present, at any period of their growth, either nuclei or nucleoli; these globules usually contain a fluid different from the medium in which they are formed, as the milk globules that contain oil, and the blood particles which enclose the red colouring matter.

A mode of cellular formation, very frequent in pathological secretions, is that of large parent cells, which enclose numerous complete cellules, either with or without nuclei and nucleoli. In this case the parent cell finishes by rupturing and permitting the cellules which it had contained to escape. When this is the case, we may perceive in the same mass cells in every stage of development, maturity, rupture, and decay.

The cellules may be transformed into fibres, by becoming elongated at two opposite points, their nuclei subsequently disappearing. This transformation is very frequent in morbid products. But fibres may be otherwise produced by the union of many cellules in a right line, without their having any tendency to become elongated.

As an example of the manner in which the cell formation we have described produces tissue, we may mention the progress of the production of callus, as observed from day to day. In fifteen hours subsequent to a bone being broken, we can perceive nothing about the fractured extremities but a bloody effusion. In forty-five hours, the space between the periosteum and the bone is already filled with a reddish liquid, in which we can perceive some molecular granules about .0033 of a millimetre in diameter. This liquid is the product of exudation, the original extravasation having been by this time absorbed. On the fourth day we find the reddish liquid become gelatinous, and presenting to the microscope, fine fibres and globules, .01 of a millimetre in diameter, containing granules internally, being the globules of cartilage, as yet incompletely formed. On the sixth day, the callus presents greater solidity; it is intimately adherent to the parts in process of reparation; its substance is of a blueish white, containing pale and numerous fibres, and many cartilage corpuscles; its consistence is not yet uniform, having yellowish jelly irregularly alternating with a white matter, of the density of fibro-cartilage. On the seventh day, the callus is uniformly cartilaginous, its globules have attained their complete development; they are from 0.02 to 0.03 of a millimetre in diameter; they are round or oval, containing nuclei, which present granules in their interior. In this cartilage we already see some canals,

and here and there some vestiges of calcareous salts. This state continues during the eighth day. On the tenth, we perceive a manifest commencement of ossification. A part of the cartilage has still preserved its primitive structure, but it is irregularly scattered with yellowish spots, in which the microscope shews a porous and areolar structure, and the net-work of vessels contains phosphate and carbonate of lime. It is unnecessary to pursue the history of reparation; but it may be seen that at first a fluid is poured out, in which minute granules float; those soon become surrounded by cyst-like cellules, which accumulate until they touch each other, while some remain spherical or oval, and some become elongated into fibres. The passages between those cells soon communicate with the broken capillaries of the fractured surface, and themselves become vessels; circulation is established, and all the conditions for the highest organization are already put in operation.

We have already said that the microscope cannot distinguish differences between transparent fluids; nor can it measure the aberrations of vital force: this instrument can do little more in pathology than to enable us to discriminate natural from diseased cells and fibres, and classify the various appearances presented by the latter. But if this much can be effected by its aid, such results may be esteemed of no mean value; and the employment of an instrument so serviceable to science, deserves a cultivation the most industrious. We shall, therefore, mention some principles which ought always to be kept in mind, in the application of the microscope to the uses of pathology.

In the first place, we recommend to the microscopic observer to hesitate long, and examine many specimens, before he forms or offers an opinion. Considerable experience is always necessary in microscopical studies, but chiefly so in morbid anatomy. In addition to the numerous and nearly related forms that are found in all organized parts, it is to be recollected that in diseased structures the cells and fibres are liable to present themselves in any and every stage of development and decay. Thus, in a cancerous tumour, you do not perceive the cancer globules alone offered to inspection, but intermixed with oil drops, fibres, blood globules, &c.; and those cancer globules which actually are present, may be either in an incipient stage of growth, or mature, or in the act of decomposition. The pus of a chronic abscess is often very difficultly recognised as such under the microscope; and this may be taken as an example of what is constantly occurring in pa-

thological microscopy, in which the typical and easily ascertained forms are only met with in a minority of instances. But the difficulty of the subject ought not to deter us from its investigation, but rather to impress on us the necessity for increased experience and industry, at the same time that it teaches us caution and restraint in forming or publishing our opinions. If we insist on this point, it is because we fear that injury has been already done to science by the too hasty generalization from a few observations by persons previously unaccustomed to this mode of investigation. Pythagoras required his pupils to remain silent during five years; and it would be well if microscopical observers would serve at least an equal apprenticeship before venturing to give utterance to their crude deductions.

The second principle necessary to bear in mind, in the study of pathological microscopy, is the importance of making a clean and careful dissection of the parts which are intended to be examined. The accuracy of this dissection should be assisted by the employment of a lens, or simple microscope, mounted and adapted to the purpose. An instrument invented by Oberhäuser, and which he calls "the pancreatic microscope," possesses peculiar advantages for these dissections, and by its means a magnifying power may be employed, varying from five or ten diameters as far as to 100. This precaution of making a good dissection in the first instance is indispensable for obtaining accurate results; and without it the microscope is only an instrument for creating and multiplying errors. Accordingly, if we wish to determine the seat of a phlebitis, it will be necessary not only to separate carefully the different coats of the vein, but also the layers of cellular tissue which surround it. If it be desired to ascertain the locality of a tubercular deposit, the pulmonary fibres, the vessels, the bronchial ramifications, must each be rendered isolated and manifest.

In the third place, the value of a microscopical observation, in a very considerable degree, depends on the manner in which the object is prepared for examination by the microscope. The thinner the layer of material which we subject to observation the better. In examining blood or pus, if we employ too large a drop, the organization of the globules becomes concealed, while the thinnest possible layer, enclosed between two glasses, will reveal to us all the elements appreciable by the instrument. Again, if it is possible to examine the particular substance without the addition of any fluid, the less likely are we to be led into error; but if dilution be indispen-

sable, we should select some liquid which will not alter the organic forms. Thus, in the examination of blood, water, if mixed with it, will cause the globules to burst, and thus interfere with their investigation: in that case we have to employ a saline or saccharine solution, equal in density with the serum, if we wish to obtain a correct view of the particles that we are to examine. Sometimes a re-agent, however, will be found to render the discrimination of cells more easy: thus pus globules can be distinguished from other analogous vesicles, by digestion with acetic acid, which renders their external membrane more transparent, and their central nucleus more distinctly visible. But in these cases an albuminous or gelatinous condition of the surrounding fluid may very much interfere with the effect of the re-agent, and then it will be necessary to permit a sufficient length of time to elapse before we pronounce with certainty on the nature of the substance. Another example of the efficacy of re-agents in assisting microscopical investigations, may be found in the use of nitric and muriatic acids, for revealing the structure of bony tissue, which they do by dissolving the calcareous salts, and thus rendering transparent the laminæ subjected to observation.

Lastly, it is necessary to examine every specimen submitted to our investigation, by magnifying powers, varying from the least to the highest in intensity. Powers of from thirty to fifty in diameter are very useful for shewing us the whole of a diseased tissue, enabling us to distinguish a true hyperæmia from a simple imbibition of the colouring matter of the blood, &c. Powers of between 200 and 300 diameters enable us to study the grouping and arrangement of the elements, whether normal or accidental, of the tissues. But to comprehend the true constitution of cells, to observe the nature of nucleoli, and to satisfy ourselves, in many instances, of the true nature of morbid elements, we require powers reaching to the limits of accurate instruments, as high as 600 or 800 diameters. There is a prejudice amongst micrographers to the employment of these latter powers; but, for many purposes, they are indispensable. We are not, however, to judge of the magnifying power of an instrument by the report of the maker: those who sell microscopes always assign to them a greater value than they really possess.

Daylight is more sure than that of a lamp; but with high powers it may be necessary to borrow the aid of the latter. Using the precautions which we have enumerated, together with those which experience will suggest to each observer, we

do not hesitate to express our conviction, that great advantage to pathological science will be derived from the employment of the microscope.

It is unnecessary for us to do more in this place than to allude to the long-known microscopic phenomena of inflammation. Our readers are aware, that when a stimulus is applied to a vascular membrane, the capillaries are first observed to diminish in calibre, and the globules to flow with increased rapidity; subsequently, the vessels dilate, and the red corpuscles becoming retarded, accumulate so as to fill up the trajet of each capillary. Under ordinary circumstances, the red globules only occupy the centre of the current, leaving a transparent margin in which are contained the white corpuscles; but in inflammation, the whole of the somewhat dilated vessel appears to be filled with slowly moving or stagnant red globules. At the same time, the liquor sanguinis commences to ooze through the walls of the capillary; and this exudation soon begins to organize into forms varying according to the nature and locality of the inflammation. The microscope cannot reveal to us the organic causes which determine the production of particular forms; but from other sources we are led to believe that the amount of intensity of the vital force, the chemical nature of the liquor sanguinis, and the occurrence of the exudation into a parenchyma, or other part in which it is liable to pressure,—or, on the other hand, on a free surface,—that these are the conditions which determine the nature of the new product: but it must be acknowledged that these are, at least, merely plausible conjectures.

When acute inflammation takes place in the interior of a parenchymatous organ,—as, for example, in the interior of the brain,—the liquor sanguinis, which exudes from the capillaries, becomes in great part organized into comparatively large globules, filled with such a multitude of granules as to render them opaque, and give them a mulberry appearance. These are called by Lebert “granular globules.” They vary in form, being sometimes spherical, at others oval, and occasionally pointed. They frequently contain one or two nuclei. Their dimensions vary from 0.015 to 0.025 of a millimetre in diameter, according to the situation in which they are developed. Although especially found in parenchymatous inflammations, such as encerebritis, red hepatization of the lungs, mottled kidney, &c., they are by no means rare in serous effusion, and recent false membranes. Gluge, their discoverer, thought they

were formed by an aggregation of the nuclei of the red blood globules, not being aware that these corpuscles in the mammalia are destitute of nuclei. They sometimes present themselves under circumstances which can scarcely be called pathological; thus they are found in recent cicatrizes, and in the colostrum, which is secreted soon after parturition.

These granular globules perform an important part in the resolution of inflammations. The completeness of this termination of disease depends on the rapidity with which the organic product of which we treat becomes formed. The granules and nuclei, accumulating in the interior of the cells, distend, and at length burst them; this accident permits them to become softened and absorbed; but if this remedial process operates with too great energy, a destructive ramolissement results; whereas if the development of cells proceeds too slowly, the bursting of these cysts may never take place, but they may become permanent parts of the organism. Thus it is explained, how a very acute inflammation tends to terminate in softening; while a subacute one is, on the contrary, apt to produce induration and hypertrophy.

In acute inflammations of serous membranes, or free surfaces where little pressure is exerted, the liquor sanguinis in general becomes organized into globules very different from those which we have described. Under these circumstances are produced what M. Lebert calls "fibro-plastic globules." These are formed of a smooth, thin membrane, and contain a very large single nucleus with one or two nucleoli. They are usually from 0.01 to 0.015 of a millimetre in diameter. In form they are spherical or oval, but in time become elongated at two opposite points, acquiring a fusiform appearance, and, still lengthening, change at last into fibres from which the nuclei have disappeared. Thus, for the most part, are formed the fibres that by their interlacement constitute false membranes. But all fibres are not produced out of cells; it would seem that the liquor sanguinis can, when effused within the body, just as when left to rest in a watch glass, suffer a kind of crystallization by which it becomes traversed by a fibrous net-work. This latter appearance is especially remarkable in the inflammatory gelatiniform exudations of serous membranes. This property of the liquor sanguinis, by which it is enabled to form fibres, without the previous development of nucleated cells, was, we believe, first observed by Mr. Addison.

It is not to be supposed, however, that the parts which we

have mentioned are the whole of what may be determined in the organization of false membranes. Besides the fibroplastic elements, there constantly are seen pus globules and granular globules, and frequently blood globules may likewise be observed; indeed, after a certain period, they always become vascular, from the neighbouring vessels communicating with the intercellular passages of the new formation. M. Lebert agrees with Carswell as to the constant existence of this communication. On this point these observers are opposed to very high authorities; but it must be recollected that the latter have endeavoured to prove an universal negative, a deduction which a single positive observation, however difficult to attain, is nevertheless sufficient to refute: and the argument of Müller, namely, that the direction of vascular connexion cannot take place from the existing vessels into the false membrane, because the former are disposed in loops without free extremities, proves too much, as it would lead us to believe that a new vascular anastomosis can never occur.

Not only can arteries, veins, and capillaries be detected in false membranes, but M. Schröder Van der Kolk has discovered in them *lymphatic vessels*. This vascular condition has been usually considered the means of their organization; but M. Lebert, with greater justice, looks on it as a mechanism for their destruction and removal. In fact, resolution cannot take place in serous cavities by the same process of softening from excessive growth under pressure, such as we have alluded to when speaking of granular exudation globules in parenchymatous organs; but there is nothing better proved than that pleuritic and pericardial effusions, which have even undergone a process of organization, can be absorbed, without leaving behind a trace of their previous presence. How often have we examined the pericardium and pleura of individuals, in whom sometime before death the most indisputable frottement was audible and palpable, and found these membranes perfectly polished and normal. Now this supposes the liquefying of the false membranes, the disaggregating of pus and granular globules, preparatory to their absorption; and we think it most reasonable to ascribe these chemical effects to the wasting agency of the oxygenized and circulating blood.

The appearances which serous membranes occasionally present, and which, in the pericardium, get the name of *cor villosum*, *tomentosum*, &c., is due to a very remarkable organization, as seen in the field of the microscope. It consists of hyaline laminae, dotted and imbricated, without nuclei, with minute vessels interposed between them. Appearances similar

to those found on the pericardium can frequently be detected on the semilunar and auriculo-ventricular valves.

The vascularity of false membranes renders them liable to inflammation, hæmorrhage, and diseased secretion; thus they may constitute, in various situations, true pyogenic membranes, constantly secreting pus in considerable quantity. Pus globules, either isolated, or in little collections, are frequently to be found disseminated through them; the latter may easily be mistaken, especially when curdy, for softened tubercles, but true tubercles are by no means unfrequent.

False membranes are liable to undergo changes which have frequently misled observers. Thus we read of their *cartilaginous transformation*, because they sometimes become white, dense, and fibrous; but the microscope shews that this appearance is fallacious, and that the true elements of cartilage are absent. Again, we hear of the *osseous transformation of false membranes*; but the bony appearance is really due to calcareous deposits, either in grains or layers, without any of the structure peculiar to bone. A gelatinous, yellowish, semi-transparent form of false membrane, containing irregular particles of a cartilaginous or osseous appearance, has been regarded as a cancerous degeneration, and called the *colloid tissue of exudation*, but the microscope displays nothing in these masses except fibres and exudation globules, together with some earthy particles, the whole infiltrated with an uniform matter of a jelly-like consistence. This latter substance, the *colloid matter* of Andral and Laennec, is believed by M. Lebert to be a mere secretion, which may be diffused through false membrane, fibrous tumours, or cancerous masses, but is accidental in all these productions. This seems to be likewise the opinion of M. Andral. In connexion with the peculiar varieties of false membrane, a remarkable case is described by M. Lebert, in which crystals of cholesterine were not only found in great quantities, in a false membrane in the pericardium, but even disseminated through the muscular substance of the heart.

We have described the fibro-plastic globules as being generated out of the liquor sanguinis, during acute inflammation, in serous cavities; but it is not to be inferred that they are confined to these situations; they, however, characterize, by their predominance, acute inflammation of serous surfaces, just as granular globules characterize acute inflammation of parenchymatous structures.

That, in time, a change takes place in the nature of every inflammation, all modern pathologists agree. Amongst the evidences of this dynamic alteration, is the change which takes

place in the character of secretion. According as the violence of inflammation diminishes, the granular and fibro-plastic globules diminish, and pus globules increase in number. Frequently, however, the latter secretion is so scanty as to be inappreciable by the unassisted senses. In other instances, the production of pus characterizes a distinct phase in the disease, and is entitled *suppuration*.

M. Lebert regards inflammation as the invariable cause of the formation of pus; but if this be the case, the inflammation must be of a very low kind; inasmuch as the period of production causes it to be regarded, in ordinary medical language, as one of the terminations of inflammation; and every surgeon has met with what are called *cold abscesses*, in which, if a sthenic hyperæmia exist, it must, at least, be of a very obscure nature.

The globules of pus are so generally known that it is unnecessary in this place to repeat their description. We may be permitted, however, to mention some of the characters by which they are distinguished from other organic globules. Thus they are known from blood globules by being much larger, being from 0.0075 to 0.0125 of a millimetre in diameter, while the latter are only from 0.0055 to 0.0062; besides this, the red blood globules are flat or discoid in form, yellowish in colour, and destitute of nuclei. The white blood globules are with much greater difficulty distinguishable from those of pus; their size is nearly the same; they are spherical, and white in colour; but they cannot be said to have a nucleus, although they contain molecular granules, varying in number from two to ten; and their external membrane is smooth and destitute of the granulated appearances observed in true pus. Blood also contains epithelium scales, very similar to pus globules; but they have usually two nuclei, and are more or less flattened. The permanent epithelium of the bronchial tubes is also very readily confounded with pus, if a low power be employed; but by the addition of acetic acid, and the use of a high magnifying power, they are observed to contain a nucleus, consisting of a single large cyst, enclosing nucleoli; the membrane is much smoother and without granulations. We have known the nuclei of epithelium scales to be mistaken for pus globules, but this could only happen to a person extremely inexperienced. The fibro-plastic globules may be confounded with those of pus; but, besides the very transparent and smooth nature of their external membrane, each globule is furnished with a simple central nucleus, much larger than is found in pus, and containing molecular granules. Still, it is difficult in

words to tell the difference between those rare pus globules whose nucleus consists of a single granule, and the fibro-plastic globules; yet when seen by a high magnifying power, the mulberry-like and dusky appearance of the former can by an accustomed eye be readily discriminated from the transparent and smooth membrane of the latter.

In the sputa, and in cold abscesses, the pus globules are often so deformed as scarcely to be recognisable: by putting them in water, however, they will swell, and then the addition of acetic acid will render their external membrane sufficiently transparent to enable the compound nucleus to be discerned, composed usually of three, sometimes of two, four, or five granules: very rarely does it consist of a single granule.

A kind of globule, found very frequently under circumstances where true pus might be expected, is called by Lebert the *pyoid globule*. This is sometimes mixed with ordinary pus; at other times, these globules alone are found in abscesses, or infiltrating organs. They are distinguished from pus globules by being, usually, more transparent, and not containing any central nucleus, but having scattered through them from four to ten minute molecular granules: their yellowish colour distinguishes them from white blood globules. They are most usually found in cachectic or tubercular subjects, but are not confined to these.

Having in the preceding remarks briefly described the various globules which are, under different circumstances, the results of ordinary inflammation, whether acute or chronic, we shall now, for a short space, direct the attention of our readers to the microscopic pathology of tubercles. M. Lebert deserves much honour for his successful cultivation of this department of microscopy. It was only by the employment of very high magnifying powers that he was enabled to arrive at accurate results: and we may here remark, that although the axiom in microscopy is certainly well founded, that we should never employ a higher power than that which is sufficient to enable us distinctly to examine the object before us, yet, we should take pains to obtain a power sufficiently high to afford us this distinct vision, otherwise we may be recording most fallacious observations. For our parts, we must acknowledge, that, with improved instruments, we are losing our terror of high powers; and in place of being contented with 800 diameters, we only desire that opticians could give us the means of examining correctly with a power of as many thousands. The wants of the microscopical observer are as unbounded as are those of the astronomer; and how much more numerous,

if not interesting, are his objects? The latter sweeps over the face of the firmament to examine masses placed at remote intervals, yet rarely to perceive a novel comet or planet hitherto unobserved; the latter pries into a depth equally infinite, but thickly peopled with strange forms, in which an immeasurable variety is equalled by the self-interpreting perfection of each kind.

M. Lebert has found in tubercles:—1st, a great quantity of molecular granules, possessing the ordinary characters of these minute particles in other situations; 2nd, a very consistent hyaline mass, which serves to connect together these molecular granules, as well as the globules, next to be described; 3rd, certain globules peculiar to tubercular formations, which are more minute than any other globules found in the organism, either natural or pathological, at the same time that they are irregular and angular in form, of a clear yellow colour (blackish when very high powers are employed), studded with minute granules from three to ten in number, but utterly destitute of nuclei. Under the tutelage of our friend, Dr. Gerlach, of Mayence, we have studied these globules, and are enabled to say, that nothing like them is to be found elsewhere in the organism, whether in health or in disease.

The appearance of the tubercle, in a great measure, depends on the preponderance of these corpuscles: when in small quantity, the tubercle belongs to the granular variety of Laennec, the tubercular granulations of Louis: when numerous, they impart to the deposit their yellow opaque appearance, and thus produce, according to the size, the miliary and crude varieties.

Softening commences in the hyaline medium which connects the globules; it has nothing to do with suppuration of the surrounding parts. The transparent medium which binds together the molecular granules and tubercular globules, in time, liquifies, and thus produces the phenomenon about which so much dispute has existed. Tubercles have no power of forming pus: this product is always derived from surrounding parts. Frequently pus globules are not to be found in softened tubercles; but, when present, they promote the process, and assist the breaking down of the globules into a diffuent mass. This is a chemical process, and is in accordance with the usual influence of pus, which acts as a ferment towards organic mixtures. For the rest, tubercles may contain very different and curious microscopic objects; globules of melanosis, and large greenish coloured globules of obscure origin, are rarely present.

M. Lebert feebly argues for the non-inflammatory origin of

tubercles. He repeats Louis' reasonings, but spoils them by a number of admissions forced from him by a love of microscopy and of truth. We will not enter into this subject on the present occasion, except so far as to ask the question, what treatment has ever been found in the slightest degree beneficial in this disease, except when founded on the hypothesis of the inflammatory origin of tubercles? No doubt there is such a thing as tubercular diathesis. Supposing inflammation to be a condition for the development of these bodies, it cannot be the sole condition, for the exuded liquor sanguinis, in ordinary inflammation, tends to organize into granular globules, fibro-plastic globules, or pus globules, according to its locality and severity; but these products are very different from tubercle globules. There must be something peculiar, therefore, either in the vital force that presides over the formation of the latter, or in the chemical composition of the blood plasma out of which they grow.

Before entering on the consideration of the microscopic pathology of tumours, it is necessary to form a distinct idea of the question which we wish to put to the microscope. Is it reasonable to expect this instrument to inform us, and that in the infancy of its cultivation, what tumours are malignant, and what are not? This is placing the micrographer in the situation of the physician and surgeon; no doubt, the latter experiences considerable difficulty, at present, in the diagnosis of tumours, but all the microscope can be expected to reveal is the minute structure of tumours possessing different physical characters. This revelation may shew us that tumours, similar in appearance, have very different structures, or that those that are very different in appearance may have a similar structure; and thus may arise a new classification founded upon minute anatomy, in which may be pointed out the relations of external forms, with primitive structure. This is all that can be legitimately expected from the microscope; and if the practitioner require from the micrographer a diagnosis, he asks from another what it is his own business to supply; and if the microscopist attempts to *pronounce* as to the malignancy or non-malignancy of a tumour, on purely optical data, he transgresses the limits of his duty.

In this place we must again allude to the laborious education necessary to make one a good microscopic observer. It is not the possession of a good microscope that constitutes a microscopist, no more than it is the accumulation of a multitude of morbid specimens in bottles makes the pathologist. Experience is indispensable to the observer; and although books

and plates may facilitate its acquisition, they can never compensate for its absence. Far be it from us to depreciate the value of the assistance which the microscope is capable of yielding to pathological science. We feel convinced that, in combination with the aids which chemistry can supply, the growth of a sound and philosophical pathology is wholly dependent on its cultivation; nay, we do not hesitate to profess our faith, that the time will arrive, when the results obtained through its agency will present gifts, at present inappreciable as to their value, to the science of diagnosis. But to gain these results, we must, for the present, confine microscopy within its proper limits, and pursue its cultivation with a full knowledge of the difficulties to be surmounted, and in a cautious and inductive spirit.

That we have not exaggerated the difficulties which occur in the microscopic study of tumours, we may mention some of the errors into which an inexperienced person may fall in attempting to distinguish a simple sarcoma from cancer. He will read in books that the microscopic elements of sarcoma consist in bundles of fibres which intersect each other, forming spaces, in which are contained globules analogous to those which we have described as fibro-plastic globules. These, it may be recollected, are cells about the size of pus globules, containing solitary nuclei, nearly as large as blood globules, each of which usually contains two nucleoli. These fibro-plastic globules may be either spherical, oval, or fusiform, according to the stage of their conversion into fibres. We will suppose our young microscopist next reading a description of cancer. He there finds that cancer is likewise composed of fibres and globules, but that the latter are most peculiar; that they are much larger than pus globules, containing one or many nuclei, and a variable number of nucleoli; their forms also are very liable to vary. Quite satisfied as to his acquisitions, he next proceeds to put his knowledge into practice. He places a thin slice of the substance of a doubtful tumour in the field of the microscope, and sees bundles of fibres and large cells, containing numerous smaller vesicles internally, and these enveloping cysts still more minute; he has no doubt that the tumour is cancerous; alas, it is but a sarcoma in which the fibro-plastic globules are contained in mother cells.

Or, he may perceive a number of cells, each the size of a pus globule, some containing a small nucleus, others deeply shaded at the circumference without nuclei, and others filled with granules, and, mixed with these, fusiform cells and granular globules, of diversified forms and sizes. After puzzling

for some time, he *pronounces* that this is a sarcomatous tumour, and internally imagines that either writers on microscopy are very obscure, or nature very inconsistent. The fact simply is, that he has stumbled on a bit of cancer in which there are only nuclei present, without the external membrane of the cells; that some of these nuclei contain oil, and others molecular granules: while inflammation having lately existed in the part, its effects continue in the forms of fibro-plastic and granular exudation globules. But let him not despair: a little experience will soon enable him to detect similar sources of fallacy; the only danger is, that he may, by rash announcements, lessen the estimation of microscopy in the opinion of those, who, ignorant of its difficulties, will regard the science as useless, unless its professors be infallible.

But microscopy has already thrown so much light on the pathology of tumours, that although its triumph may be delayed, it is not the less eventually secure. It has fixed the principle as true, though sad in its present aspect, that mere excision will rarely or never prevent the return of cancerous disease. Thus, we have been always taught that some cancerous affections are less liable to relapse than others—those of the lip, for example—and that extirpation of the breast has often completely removed the disease. But the microscope has shewn that the majority of those affections of the lips which had previously been considered cancerous, are actually mere epithelial tumours; and several forms of mammary tumour, heretofore considered as malignant, are destitute of those microscopic elements which are found in true cancer.

We cannot hope to bring within the limits of a notice of this kind, a description of the different varieties of tumours. Perhaps we may return to the subject, for it is inexhaustible, and tell at some future opportunity how much the microscope is capable of assisting this department of research. For the present, we shall rest satisfied if we succeed in giving a philosophical tone to microscopical inquiry; encouraging studious investigation, whilst we discountenance that which is frivolous and inconclusive. The microscope is an instrument, by the ignorant or skilful use of which the progress of medical science may be much retarded or advanced.

We thank M. Lebert for the precious boon which the publication of these volumes, from which we have drawn so largely, has conferred on pathological physiology.

The Structure and Functions of the Female Breast, as they relate to its Health, Derangement, and Disease. BY E. W. TUSON, F. R. S. Surgeon to Middlesex Hospital. London, 1846, pp. 485.

ALTHOUGH great importance has been attached to the investigations of the healthy and morbid conditions of the female breast, no special publication has heretofore appeared on the subject, in the English language, as far as we are aware, with the exception of Sir Astley Cooper's works on its anatomy and diseases, the latter of which is, unfortunately, incomplete.

Mr. Tuson, the author of the present volume, has already appeared in print on no less than six different occasions; and his pursuits having been principally anatomical, his description of the anatomy and functions of the organ of which he treats can hardly be questioned. He has also been favourably circumstanced for acquiring a knowledge of its derangements and diseases, and malignant diseases in particular, inasmuch as he has been employed in their investigation for a very lengthened period, and the peculiar arrangements of the hospital with which he is connected afforded him remarkable facilities for prosecuting those researches.

A very considerable portion of the work is occupied with minute details of organic chemistry, in accordance with the views of the Giessen School, the aid pathology has received from microscopical research, and the consideration of the corresponding adaptation of remedies in special cases,—as the exhibition of “proteine,” for example, from which the author believes much benefit has arisen. On this subject the author promises a communication at no distant period. We shall at present limit our analysis of his book to its more practical portions; but we would recommend him, in the preface to his new work, to avoid an appeal to the non-medical public, a circumstance at once unscientific and unprofessional, and, we would add, impolitic. That medical works will be indiscriminately read, we know and believe, and, perhaps, by “young mothers too, who may find in them some useful information!”—p. xv. But let not practical and scientific authors cater for such distinctions. Such appeals detract very materially from the merit of their works. We would make another remark: we are not pleased, where the researches of an author have been so extensive, as is manifest in the present instance, and where obligations so numerous have been acknowledged, that no mention should be made of the valuable materials available from the researches of the Dublin

School. We would refer the author, should he not be aware of those valuable resources, to the late Professor Colles's Surgical Anatomy, published so far back as 1811, where several practical and original remarks will be found on the subject; and to his still more recently published "Lectures on Surgery," from which equally valuable information may be gleaned. Further, Mr. Carmichael has been mentioned in the text; but no allusion to him is made in the grand array of names set forth; and Mr. Tuson is either ignorant of, or has wilfully omitted to consult and mention the work of Dr. Montgomery, who has particularly noted the "mammary symptoms during pregnancy," and "the peculiar changes of the areolar disk," and has illustrated the latter by plates equal in perfection and beauty to those of Sir Astley Cooper. In the former series of this Journal, several original communications may also be found, well worthy of the author's examination. We repeat, we would not have alluded to these circumstances, had not such an *exposé* of names and works said to be consulted been set forth in the preface.

Our author commences with an "Anatomical Examination into the Structure and Functions of the mammary Glands," and a consideration of the "changes which they undergo during certain periods of life," and afterwards proceeds to his classifications of the Diseases of the Breast. We think his first division of his subject, in a special work of the kind, extremely defective; it should have been entered into more in detail, both in reference to the external and internal conformation of the organ. For example,—the fascia of the breast is barely alluded to; its connexion with the skin in front, and the nipple in particular, and the processes which it sends to envelope the secretory structure, and identify themselves with it, are not specified, neither are its posterior attachments mentioned. We know of no anatomical details more interesting than those connected with its secretory organization, yet they have not been enlarged on. In a practical point of view, the importance of an accurate knowledge of both is indispensable.

It was to Sir Astley Cooper's conviction of the great importance of an accurate discrimination between the natural and morbid structures of this organ, that we are indebted for his splendid work on its anatomy. Referring to that great work for such information, and comparing it with the one now before us, we find some statements made in the text of our author of very questionable accuracy. We would particularly specify what he terms "the lymphatic glands, placed be-

tween the lobes, or lobules, that form the glandular structure of the breast." We know of no such glands in the *structure* of the female breast; we know of no author who describes them; and, in a practical point of view, we do think the proof of their existence would be most important. In our numerous pathological examinations we do not recollect having met with such, even in those cases where the whole lymphatic system of glands appeared to be primarily engaged, and where the several regions in which they exist were involved. No doubt, there are several small lymphatic glands scattered over the surface of the female breast, and situated, for the most part, under the skin, and "between the nipple and the axilla," as described by Cruikshank; and we occasionally find one or two along the anterior fold of the axilla, somewhat more in front than ordinary; and we also find isolated tumours in the breast, apart from its glandular structure; but the important question is, are those tumours adventitious deposits, or are they conversions of healthy into unhealthy structure? The proof of the presence of lymphatic glands would assist in deciding the question, and would, most probably, materially influence us in our practice.

The changes in the functions of the mammary gland, and the corresponding changes in its organization, influenced by period of life, and social contingencies, attendant thereon, are familiar to all practitioners. Their pre-disposition to morbid action, in consequence, is equally so.

"Anything that can tend to prevent the gland becoming in an unhealthy state should not be looked upon as trivial, for it is far better to prevent disease, when it is in our power to do so, by allowing the natural position of any part of the body to be preserved."—p. 14.

The author here alludes to the mischief occasionally arising from badly adjusted stays, and from the want of uniform support to the breasts; and, apparently trivial as the cause is, we are aware of more than one case where mischief was the result. The projection of a badly-formed, and badly-padded busk, as it is termed, has been decidedly injurious. In many cases, and especially in those where the breasts become loaded with fat, and shew a disposition rather to approximate each other, such a state of things is very hazardous. In such cases, occurring as they do, at what we may term the critical period of female life, we have seen malignant disease, we will not say, absolutely developed, but, most certainly, rapidly advanced, where otherwise it might have lain dormant, or been held under control. In such cases the removal of the busk altoget-

ther, and the adoption of other mechanical contrivances for the support of the breast, are indispensable.

The altered organization of the mammary glands during lactation, the variety of circumstances influencing their healthy action, and those tending to deteriorate it, either locally or generally, are most important topics, and necessarily involve in their consideration the composition of the human milk, the comparison of its several elementary constituents with those of our domestic animals, and the variety of causes which may affect its healthy properties, so essential to the well-being of both mother and child. However attractive the chemical observations, connected with this portion of the work may be, we pass them by, as the subject has been already very fully treated of in a former Number of this Journal, in reviewing the work of M. Donné on the microscope^(a); to which author, and Sir Astley Cooper, we beg to refer for further details respecting the physiology of lactation.

We will now pass to the classification of the diseases of the breast, as adopted by Mr. Tuson, and comprised under three sections, namely:

1. Functional and painful affections.
2. Organic lesions, generally occurring independent of inflammation.
3. Organic lesions, productive of tumours, or formations of a malignant and contaminating character.

Under those respective heads, a vast catalogue of morbid actions is considered, and we question very much whether the simple arrangement of Sir Astley Cooper, or of Velpeau, would not have answered all practical purposes equally well. The objection to Sir Astley Cooper's classification is equally applicable to that of Mr. Tuson's, or Dr. Copeland's, which he adopts. We are just as likely to find the product of their third class supervene on the first or second. We have known (indeed, such a case is stated in the text of our author) "encephaloid cancer" to follow, almost immediately, acute mammary abscess; and we have known "scirrhus cancer" to be no more than convertible fibrous or chronic mammary tumour; and it is an injustice to Sir Astley Cooper to insinuate that he attached such importance to his classification as not to be alive to its practical fallacies. The division of the diseases of any particular organ into those which are malignant, and those which are not malignant, simplifies their description, and no less so their diagnosis and treatment.

(a) See Dublin Medical Journal, vol. xxvi., p. 316.

Let us take a rapid review of those several sections in the classification of Mr. Tuson.

Class I.—Functional and painful affections of the breast.

Here various subjects are disposed of in detail: lactation, its progress, termination, derangements; inflammation of the breast; milk abscess; lacteal tumour; and the various affections of the nipples.

Under the head of disorders occurring during lactation, including "slight disorders of lactation, milk fever, excessive secretion of the milk, undue lactation, insufficient secretion of the milk, suppression of the milk, termination of the period of lactation," we have only to remark, that there is nothing new, perhaps, to be advanced; but there is a sort of puerility in its style, and an absence of that tone which should stamp the scientific medical writer. There are also many objectionable expressions and repetitions, so innumerable and unnecessary, that they constantly remind us of the special appeal in the preface.

The statements of our author respecting "inflammation of the breast, its termination, and consequences," require no comment; neither do those in reference to milk abscess (its very common result), although, perhaps, more special notice might have been taken of its aggravated and complicated forms, such as those noted by Messrs. Burns and Hey.

When we bear in mind the delicate class of females who are usually the subjects of those inflammatory attacks, and especially when we consider the high degree of local organization of the parts concerned, and the condition of the patient at the ordinary period of such attacks, we cannot be surprised that their most frequent termination is suppuration; and this necessarily will be acute or chronic, circumscribed or diffused, according to the character of the inflammation; and its general effects will be proportionably mild or severe.

The treatment of inflammation of the breast must be guided by ordinary principles, at the same time that we think, with the late Professor Colles, that it is upon the constitutional means we are principally to depend; and we know he placed little or no dependence on local treatment. In orchitis, the advantage of an active emetic must be admitted in checking an inflammatory attack; and, reflecting on the many analogies existing between the organ there engaged and that under discussion, we have found equal advantages from similar treatment at the onset of mammary inflammation. In this country, the most marked local benefit has been derived from a plan not alluded to by Mr. Tuson, namely, "the heated wooden bowl," the mode of application of which it is unnecessary to

specify. By means of it and an emetic, followed by saline aperients, the most unpromising cases have terminated, *apparently*, in resolution: we say *apparently*, because it is by no means certain that abscess may not form, and, escaping our detection, be absorbed.

The absorption of matter, the result of mammary inflammation, is considered by our author as the great desideratum in such cases; and this is said to be secured by an application he specially recommends, namely, a spirituous solution of the muriate or hydrochlorate of ammonia in the proportion of one scruple to the ounce. This is to be applied, cold or warm, as may suit the sensations of the patient, on lint covered with oiled silk; and should much irritation arise, spirit or water is to be added, or its use suspended. Whether any special advantage may arise from the use of this lotion, or rather embrocation, we will not pretend to say (*a*). It is not different from, and its local effects appear to us identical with others in daily use. However, Mr. Tuson has attached to it "*miraculous*" effects in "*preventing the breasts bursting spontaneously, when suppuration had been fully formed, and when the use of it has been followed up for nearly twenty years; and that it was never found to fail, when properly applied, even under very unfavourable circumstances.*"—p. 88. The two cases cited by Mr. Tuson in proof of the efficacy of this lotion, must make any, even the most casual reader, sceptical as to the reality of its "*miraculous*" virtues.

It is extremely questionable whether suppuration had taken place in either case; and hence, whether they should have been at all considered under the head of "milk abscess." In the first case, the history is so deficient that we are perfectly in the dark as to its nature; all we know is, that "the breast was very considerably enlarged, and that fluctuation could be felt to a great extent, which almost induced a surgeon to open it."—p. 108.

Now, all surgeons know that such symptoms are by no means proof of the presence of matter,—nay more, that such a case is not one of inflammation of the breast, terminating in milk abscess; at all events we would like to know what was the colour, and what the condition of the integuments and surrounding parts. In the second case, there is presumptive evidence that there was no suppuration at all; and that any inflammation present was of a very chronic character indeed. Again, other means, both general and local, were had recourse to, which must have

(*a*) The favourite application of Justamond is familiar to all—in fact the proportion of the muriate of ammonia in it, was greater than of Mr. Tuson's, inasmuch as it was about ʒss. to the ℥i. He, however, did not attach to it the properties stated in the text; he considered that it *kept the milk fluid* in the "unsuppurated state of the milk breast," and that it possessed *no effect on pus formed*.

influenced the progress of the symptoms; and, with this "miraculous remedy," the patient is, even under the care of Mr. Tuson, not dismissed cured, for more *than seven weeks* after her application to him, so that she was altogether more than *three months* invalided.

We will not delay with the consideration of Mr. Tuson's "*rationale*" of this remedy; its "*dissolving coagulated milk*, and its *coagulating blood*, and hence, in the first case, *removing obstruction*, and in the second, *preventing a too great secretion taking place*" (p. 108), are really notions too absurd and ridiculous to do more than transcribe them as coming from an advocate, "who looks forward to an advancement in the scientific practice of our profession, to an extent of improvement that cannot be anticipated or even contemplated!"—p. xii

The interference of the surgeon in those cases of suppuration of the female breast is a matter of no small moment. There are many difficulties to contend with, no doubt, and not the least are fistulæ, the result of his interference, or, at all events, attributed to him, and the accumulation of matter in the sac or cavities to which those fistulæ lead. They cause fresh febrile paroxysms, and proportional accessions of local inflammation; and when they reach to a great depth, the annoyance they give to both patient and surgeon is still more distressing. In cases of this description, we lately adopted the following plan, which we believe to have originated with us. A young married lady was attacked with the ordinary symptoms of inflammation of the breast, within the usual period after her confinement; she was of a delicate, nervous, temperament; suppuration was the result, and an opening was made by her medical attendant, from which she experienced relief. The opening became fistulous, discharging common purulent matter, varying, at intervals, as to its amount. A means, often adopted in this city in such cases (and not alluded to by Mr. Tuson), was had recourse to, namely, compression by strips of adhesive plaster. No satisfactory results, however, ensued; the fistulous opening continued; successive attacks of inflammation supervened, preceded by regular febrile paroxysms: an increased discharge of matter followed those attacks, and subsequent deceptive improvement. Fresh accession of feverish symptoms, and fresh local inflammation again supervened: the general health became seriously involved, and under those circumstances we saw the lady, in consultation with her usual attendant, when it was evident that hectic fever had set in. The local sufferings were severe; there was considerable tumefaction and induration of the breast, and a narrow fistulous opening on the axillary side of the nipple,

which was found, by careful exploration, to lead, by a sinuous route, to a very great depth into the mammary structure, if not behind it; pressure on the breast did not increase the discharge from it. The usual treatment of laying open the fistula, was suggested, but not acted on, in consequence of the great depth to which it passed, and the debilitated state of the patient. The following plan was adopted, with immediate relief, and ultimate success. The breast was enveloped in a large belladonna plaster, spread on chamois leather, with a free opening for the nipple and fistula, and so cut that it could be tightened as the swelling might subside. We introduced into the fistulous opening the end of a glass syringe, carefully rounded off, and sufficiently long to enter it to some distance; purulent matter was then drawn off, to the amount of from two to three ounces, and immediate relief was experienced. This practice was persevered in from day to day, and sometimes employed twice in the day; mild astringent injections were used, and in proportion as the suppuration diminished, the pressure, by means of the plaster, was increased. In addition, we used the precaution of keeping the sinus and opening free by a small piece of gum elastic catheter, guarded on the outside with a circle of sealing wax, and of a length sufficient to avoid friction against the walls of the cavity itself.

The cure was not very rapid, but it was complete, without any further local treatment. The fulness and the induration of the breast subsided, and ultimately it recovered its normal feel. The general treatment consisted of sea air and generous unstimulating diet; bark, steel, and mineral acids, &c., were had recourse to, as the special condition of the symptoms suggested. We can recommend this local treatment of mammary suppuration in the fistulous condition, viz., emptying with a syringe the pouches, which may lie below the level of the opening of the sinus, particularly when that sinus is irregular in its course; providing against the accumulation of pus, by constantly draining it off, and applying graduated and uniform compression by means of plaster surrounding the breast; to which we may add the use of various resolvents, which all appear to possess great advantages. This plan will be found equally applicable to sinuses, similarly circumstanced, in other situations.

We think Mr. Tuson should have directed more special attention to the occurrence of chronic abscesses in the female breast. They require great caution on the part of the surgeon, being very insidious in their progress, and giving no annoyance to the patient, until they are accidentally discovered as a tumour or swelling, when they excite alarm, more from appre-

hension as to their nature, than from any pain or uneasiness experienced. That mistakes are made respecting their diagnosis, there can be no doubt; we may refer to the statements of Sir Astley Cooper on the subject, and to "*Kirkland's Surgery*," where a case is given which had been mistaken for scirrhus, and actually operated on, as such.

The essential features of those chronic abscesses simulate, in some respects, the lacteal tumour; and specially so, where such tumour is not actually coexistent with lactation. Hence great circumspection and caution are requisite in the diagnosis. A case was lately sent to us, as malignant, which was of this nature. A country-woman, aged about forty, and mother of nine children, twelve months previous to application observed a small moveable tumour, about the size of a gooseberry, under the integuments of the left breast, above the nipple; she experienced no pain; no uneasiness; slow, but gradual increase in size took place, and some uneasiness was latterly experienced from change in the weather, and occasionally from movement of the arm. On examination, a tumour was found occupying the upper part of the breast, about the size of a hen's egg, very hard and tense, but uniform and smooth on the surface, unaccompanied by any discoloration of the integument, or adhesion to it. We decided that it was not malignant; punctured it with a trochar, and gave exit to about four ounces of a fluid resembling thick cream. No injury arose from the puncture; no repetition of it was requisite; the case got perfectly well; as happened also in one of a similar nature alluded to by Mr. Colles in his lectures.

There is nothing new in the remarks of Mr. Tuson respecting the affections of the nipples; but it is strange that under the classifications of *Diseases of the Female Breast*, "supernumerary nipples" should be mentioned, and no allusion made to supernumerary breasts,—as, for example, to the case of quadruple *mammæ* noted by Sir Astley Cooper.

We have, on two occasions, met cases which we are disposed to term furuncular inflammation of the glandular follicles, seated in the immediate vicinity of the nipple. Each case occurred in the advanced stages of pregnancy, and one in a woman beyond forty, which added to the difficulty of diagnosis. The first case we saw through the kindness of Dr. Montgomery, and a more malignant tumour, in appearance, could not present itself. It was situated within the areolar disk, about the size and form of a raspberry, with a dusky, livid hue over it. It discharged from the surface a foetid bloody serum. The woman was within a month of her confinement; we acknowledge, were she otherwise, we might have hesitated about the treat-

ment, such was its unpromising aspect. It was treated as furuncular inflammation, and quickly healed. The second case occurred in a younger woman, and the presence of furunculi elsewhere confirmed our view of it. Notice of such morbid appearances near the nipples are important, and worthy of being recorded.

CLASS II.—Organic lesions of the breast, generally occurring independent of inflammation.

In this class we find, with few additions, those complaints which, according to the arrangement of Sir Astley Cooper, arise from peculiar or specific actions, but which are not malignant, and do not contaminate other structures. They are, in fact, identically the same, but that their order is reversed, and that "atrophy of the breast" and "pancreatic sarcoma" are added, which all may be referred to deteriorated nutrition, arising from local or general causes, and seldom originating with any ostensible inflammatory symptoms. Under this class we find enumerated "hæmorrhagic congestion," or "ecchymosed states of the mamma," "atrophy of the mamma," and "hypertrophy of the mamma;" and we would ask whether the definition of the first of those diseases is accurate, namely, *that it "consists of an ecchymosed state of the integument of the mamma?"* and whether it is not more probable that there is also more or less passive hyperæmia of the mammary structures?

We have met with cases referrible to this head, where the "*ecchymosis of the skin*" was hardly appreciable, though that of the subcutaneous cellular tissue was traceable. Sir Astley Cooper's fourth case confirms this view, and was accompanied with an occasional discharge of blood from the nipple.

"Hypertrophy of the mamma," which we look upon as synonymous with the "large and pendulous breast" of Sir Astley Cooper, is stated to consist of an abnormal enlargement of the breast,—*not* of its glandular structure, but of its surrounding cellular and adipose tissue. Now, in the cases of this abnormal state of the breast which we have met, although somewhat of general corpulency did exist, we were yet able to detect the true glandular structure of the breast (as Sir Astley Cooper states) in a state of hypertrophy. Were the condition owing to that state of the adipose and cellular tissues, it would communicate a different sensation; and we question whether it would be possible to feel the glandular structure at all.

In the treatment suggested, we are surprised to find no allusion made to the exhibition of any of the preparations of iodine, either externally or internally; and even in reference to the functions of the uterus we would expect benefit from this remedy.

The "scrofulous tumours" of the breast, it would appear to us, should occur much more frequently, if the lymphatic glands were as numerous in this organ as Mr. Tuson states; and we do not think the cases he gives at all corroborative of their presence. We may also remark, that the tumours were *single* in each case; in only one instance did Sir Astley Cooper find a second in the same breast; and it appears to us strange how the other lymphatic glands should escape. We do sometimes find a single gland engaged in the cervical or inguinal range; but in the strumous diathesis, it is rather the exception than the rule.

There is nothing novel in Mr. Tuson's treatment of those scrofulous tumours. He is favourable to the employment of electro-galvanism, by means of a current passed through the swelling, and accomplishes it with a conductor of a concave form placed at the side of the tumour. "This is to be done daily—it is a safe remedy and no injurious effects have been noticed in any cases where it has been unsuccessful."—p. 145. He also mentions, that he has frequently prescribed *protéine*, either alone, or at the same time with iodine, and that the greatest benefit has resulted.

"The chronic mammary tumour" we have met on many occasions, and have had an opportunity of examining it after removal by operation. Mr. Fleming lately exhibited, at one of the meetings of the Pathological Society, a tumour of this description, the situation of which was *superficial* to the mammary gland; and he was enabled to compare it with one removed by Mr. Adams, and shewn at the same society. The situation *behind* the gland, in the latter case, was illustrated by a drawing, thus confirming the statement of Mr. Colles(*a*), who says in his *Surgical Anatomy*, at page 123:

"Although the diagnosis between scirrhus and other diseases of the breast is not founded on the anatomical structure of this part, and consequently does not come within the scope of this work, yet I cannot refrain from stating the symptoms of another species of tumour, which is occasionally to be met with in the breast, as it is not described by any author I have hitherto seen. This is a distinct tumour or hardness in the breast, generally *seated deep in the substance of this gland* and towards the axilla. This is usually traced by the patient to some slight hurt—in size it rarely ever exceeds a walnut. Its surface seems rough, but this is caused *by its being felt through the gland*; it is occasionally attended with some slight pains: these are induced by any distress of

(a) A Treatise on Surgical Anatomy. Part I. By Abraham Colles, one of the Professors of Anatomy and Surgery in the Royal College of Surgeons in Ireland. Dublin, 1811.

mind; by wearing the clothes tight across the breast; and by a costive state of the bowels: on the approach of the menstrual period, these pains increase, and cease on their evacuation being completed. A temporary enlargement of the tumour attends those attacks of pain, and retires on their cessation. The subjects of this complaint are young women under thirty years of age. In one instance the patient was nearly forty years old, and unmarried. In another, the lady was married, but had not any children, and was irregular in menstruation. The tumours disappeared in such of these patients as became nurses, in the others they have remained stationary for many years. The only treatment I conceive they require, is such as tends to restore the general health. A lotion of Aqua Acetatis Ammoniae, or camphorated spirits of wine, applied with a feather, and allowed to evaporate, are the topical applications which I have employed with most relief to the patient. I have introduced the mention of this disease not for the purpose of laying down a plan of treatment, but of preventing this kind of tumour from being mistaken for a true scirrhus."

The resemblance in structure between the two specimens exhibited to the Society was most remarkable, and there was superadded in these cases what we have not seen elsewhere described, namely, canals passing in different directions, lined with a delicate tunic, resembling mucous membrane, and terminating in so many *foramina caeca*. From the inspection of the plates of Sir Astley Cooper, illustrating sections of this class of tumour, no appearance of those canals is manifest; and, undoubtedly, from their being folded up on each other, they might have escaped his observation. Had he detected them, it would have confirmed his opinion that they were merely additions to the glandular structure of the breast.

They are identified with "*the tumour of the breast resembling scirrhus*," described by Professor Colles, and, more than probable, with "*the fibrous tumour of the breast*," which formed the subject of a memoir brought under the notice of the French Academy of Medicine, by Cruveilhier, and given at length in the text of our author.

Notwithstanding the high authority of Cruveilhier, we are disposed to the opinion that such tumours are capable of malignant transformation; and that, when they occur at the more advanced period of female life, they ought to be removed, particularly if obstinate in yielding to remedies, or if productive of uneasiness. The one exhibited at the Pathological Society by Mr. Fleming, occurred in a person aged forty; and a specimen of a similar form of tumour removed by the same gentleman from a lady aged upwards of fifty, is to be found in the museum of the College of Surgeons. We have at present under our care a case where a similar tumour (at least as far its

history and local diagnostic characters were concerned) existed twelve months back in a lady about the same age. When apparently receding under treatment, she went to the country, and on examination after her return, after the lapse of two months, it was found altered in its nature, and malignant beyond relief by operation. She is yet living; the disease, in its scirrhus form, making slow but certain progress; and notwithstanding, an improvement has taken place in the general health, thus confirming the remark of Bayle, alluded to by Walsh in his recent work on cancer.

It is unnecessary to dwell further on the characteristic feature of this class of tumour, the importance of its accurate diagnosis, and the treatment suited to it. All systematic authors of the present day enumerate those details, which are to be found in their respective works. The capability of malignant transformation of this class of tumour should not be lost sight of, and its extirpation should be accordingly had recourse to.

With respect to "the painful subcutaneous tubercle," alluded to by Mr. Tuson, under the head of the neuromatous tumour of the breast, as he terms it, we by no means consider them identical, no matter where situated. Mr. Tuson does not appear to be aware of the opinions of the celebrated Dupuytren respecting its pathology. Dupuytren examined "the painful subcutaneous tubercle" with a good deal of care, and he never was enabled to detect any connexion between it and any nervous branch or filament. We can bear testimony to the accuracy of his observation: we have never found such tumours situated in the breast, but we have examined them in above a dozen instances elsewhere, and always found them isolated, imbedded in the subcutaneous fat, and without any traceable vessel or nerve leading to them. One about the size of a garden pea was exhibited at a late meeting of the Pathological Society, immediately after its removal from under the integuments of the calf of the leg of a young woman. It was circumstanced as above stated. Mr. Adams exhibited another about the size of a barley-corn, removed from the outside of the upper part of the forearm; its appearance and connexions were identical, and, with the assistance of the microscope, he could not discover anything like a nervous fibrilla connected with the cyst of the tumour, or its substance. Sir Astley Cooper, in his description of them, specially alludes to this circumstance. Many instructive details are to be found respecting this class of painful tubercle in several of our periodicals: in the *Dublin Hospital Gazette* Reports of the Pathological Society, by Messrs.

Adams and Fleming; in the *Dublin Medical Press*, by Professor Wilmot; but the most elaborate paper is by Mr. Wood of Edinburgh.

CLASS III.—“Organic lesions, tumours, or formations of a malignant and contaminating character.” More than one-half of this book (extending to 480 pages) is occupied with the consideration of this important division of the author's subject; and we cannot but say, that the expectation we entertained from the allusion in the preface to his extended experience and vast opportunities of dealing with it, has been very far from realized. The observations made on this subject appear to us to refer more especially to malignant disease in general, and to be mere compilations of the varied opinions of authors of eminence who have heretofore directed their attention to the subject, as well as of those who have recently adapted their chemical and microscopical researches to its mode of formation. In the last Number of this Journal, the subject of cancer has been very minutely investigated in the review of Dr. Walsh's able work, and to this review we beg to refer for information, at once satisfactory and explicit. In the article alluded to will also be found special reference to the occurrence of this disease in the female breast, under its several species, to the symptoms which characterize each, and to the suitable treatment, comprising *matériel* in our humble opinion of much more practical import than that to be deduced from the unconnected details and theoretical notions of Mr. Tuson. We regret much that we are obliged to speak thus, and we might speak more harshly of the style pervading the work; but we cannot avoid remarking, that a surgeon attached to an hospital, stored with the advantages he has specified in the preface, should have treated on one of the most unmanageable and distressing diseases to which the female is liable, in a manner more suited to his province. As surgeon to the hospital he should have noted, in particular, the varied forms under which the disease arose; the varied characters which it assumed in its progress, as derived from practical observation; and, above all, the means of its accurate diagnosis; and when no doubt could exist as to its nature, he should have especially directed attention to the *rexata questio*, now of so very vital moment to the character of surgery, and to the prospects of the patient, namely, the propriety of removing the morbid mass. He should have done so, rather than give the result of the effects of remedies, questionable not alone as to their efficacy, but doubtful as to their appropriate application. Pages upon pages, to the amount of above eighty

in this section of the work, are occupied with extracts from numerous authors, which, if possessed of any value, would, it is to be hoped, be familiar to the scientific reader, or would at all events have only required reference.

We close Mr. Tuson's work with an opinion, we are sorry to say, extremely unfavourable to the manner in which he accomplished the task which he undertook. It falls lamentably short of our expectations in a special work of the kind, and vastly so, when we reflect on the magnificent, the ample resources available from the splendid museums within his reach for the detailed investigation of a subject of such great moment. In this city, comparatively limited as our resources are, yet forming as our hospitals do a nucleus for extreme cases arriving from the more distant parts of the country, we believe we are safe in asserting, that, as regards the character or species of disease, the scirrhus and encephaloid are the most common forms of cancer presenting themselves in the female breast: that the former is by far more frequent in occurrence: that it develops itself at a later period of life, and that, of the two, it is more under the control of the surgeon: that it is a matter of doubt to decide, in not a few cases, whether the origin of the disease is in any one portion of the mammary structure, including its investing integument, or whether it is not rather an adventitious or new growth, deposited in some one part of it; that the circumstance of its original site—that the age of the patient—the age of the tumour, and its slow or rapid progress, are important items in our prognosis; that, in reference to the period of interference of the surgeon, as far as operation is concerned, it is a matter of no small moment to decide, and that the opinion of those most experienced in this city—and, we believe we may add, throughout Ireland,—is inimical to its performance in its disseminated form; but that where youth and rapidity of growth of disease coexist, it is totally objectionable: that the statistics of our operations confirm this view, and that it is desirable that some definite principles of acting should be established amongst the leading members of the profession at large, respecting it.

In the recently published work of Sir Benjamin Brodie, his tenth lecture embraces most valuable remarks on this subject, and to it we beg to refer for information regarding those circumstances, local and general, which are, on the one hand, to dissuade the surgeon from interference, or, on the other, to sanction it as a permanent or temporary means of relief. We are much surprised that among the very numerous extracts introduced by Mr. Tuson, this lecture of Sir Benjamin Brodie was

not either partially or fully given: it is full of practical value. Were it necessary, we could instance cases fully corroborative of his views; and we might add, that success will occasionally ensue, when the opposite result might almost be anticipated. Thus, we have removed from an enormous breast an elliptical portion, including a scirrhus tumour, and leaving the nipple, when the lady, the subject of the operation, was 68, and she lived beyond 80, dying of another disease. Again, we have known an encephaloid cancer of the breast, in an ulcerated and gangrenous state, to be removed by Mr. Cusack with a view to temporary relief, and that in a woman about 30, and after three years we learned that she was well, and apparently in good health.

Mr. Tuson, in allusion to the several remedies applicable to malignant disease of the breast, appears to attach very great value to the chloride or the bichloride of carbon, administered both internally and externally. The details of the cases he gives do not speak much in its favour as a therapeutical agent. Its properties appear to be sedative; we do not, however, think it fair to prejudge its effects; we are aware it has been tried in this country in malignant diseases, but we cannot speak from personal observation.

We have thus taken an analytical review of Mr. Tuson's work. Its very creditable exterior, and its title, impressed us with a favourable opinion respecting it; and we do regret that we have been obliged to speak of it disparagingly. We owe the public, however, and the profession, a duty, from the performance of which we will not shrink. Had Mr. Tuson appeared for the first time in the capacity of an author, we might hesitate; but as he has been recognised as such, on no less than six different occasions, according to his own statement, the duty is still more imperative.

The Vegetable Kingdom, or the Structure, Classification, and Uses of Plants, illustrated upon the natural System, with upwards of five hundred Illustrations. By JOHN LINDLEY, Ph. D., F. R. S., &c. London: 1846. 908 pp.

It would be no easy task to point out a work of such great importance to the botanical student, one in which the study of the science in its most difficult department is so much facilitated, as that whose title stands at the head of the present notice. Dr. Lindley has now been so long before the scientific world, as a most laborious and successful writer, that high anti-

cipations must be formed of any work proceeding from his pen. With such anticipations the volume before us has been ushered in upon the stage of scientific competition, and we freely admit that, in our case at least, the hopes which had been excited have not been disappointed.

It is the object of "The Vegetable Kingdom" to give a general view of the structure, classification, and uses of plants, the whole being made subservient to the elucidation of the great principles of the natural system, and the work must be looked upon as an eclectic concentration of all the previous labours of its author.

The grand features of the present work, those in which the peculiar opinions of the author are to be sought for, will be found in its bearing upon classificatory botany. But a comparatively few years have elapsed since the system of Linnæus was in this country predominant,—the only one which, except in a purely theoretical point of view, was deemed worthy of a moment's study. The beautiful observations and monographic writings of Robert Brown, however, as well as the example of our continental neighbours, had been gradually preparing the way for more philosophic views, when the various publications of Dr. Lindley, appearing in rapid succession, completely established the preference for the natural system, which has now become as striking a feature in the modern British school of botany, as the system of Linnæus was in that of thirty years ago.

The vast importance of philosophic classification in the biological sciences must be evident to every one who reflects upon the amazing multitude of distinct forms which it is the object of these sciences to investigate and describe. We live in a world of wonder and of beauty; millions of organized beings are around us, varying in form, and structure, and function, sharing with us in the marvellous gift of life, and presenting for our investigation properties as intensely interesting, as worthy to engage the highest powers of an intellectual nature, as anything offered in the wide field of science.

But here the question suggests itself: How are we to acquire a knowledge of this innumerable host of forms? We look abroad upon the world, and millions of objects come thronging upon our senses; our attention is distracted, our thoughts become confused, we find ourselves in a wilderness of ever-varying existence. We endeavour to become acquainted with the objects which surround us by studying them *individually*; but the attempt is at once given up in despair. An adequate knowledge of any one object can be acquired but by a lifetime's

labour; who, then, can expect to know the millions which surround us? We attempt to study them in *masses*, but find that we can make no general assertions of our ill-assorted groups; we are only bewildered by the immense multiplicity of forms; all nature becomes obscure by our very attempts to develope it; there is nothing distinct, nothing definite in the ideas we have acquired; we sicken at the labour which is before us, and give up the study of nature in despair.

In this difficulty two of the most powerful agents which ever operated in facilitating the acquisition of knowledge come in to our assistance, *classification* and *nomenclature*. The chaos which had surrounded us knows their power, and, as if at the spell-word of a magician, marshals itself before us; order becomes everywhere apparent, new harmonies strike us at every step, and the great scheme of the material world opens up around us, not as an accumulation of unconnected objects and phenomena, but as one beautiful, harmonious whole.

Zoology and botany are the two great classificatory sciences; mineralogy, the remaining division of the natural history sciences, having hitherto yielded but a very partial obedience to the laws of classification; and, though many attempts have been made to impose upon the mineral kingdom the same beautiful code under which biological science has made such rapid progress, the efforts have been as yet attended with but very limited success.

The great basal idea in all classification, is *resemblance*. Objects may be associated in groups, either by seizing upon their *essential* resemblances, so that all beings in the same group shall be more like to one another, than to any with which they are not thus united; or this association may depend upon their agreement in certain *selected characters*, in which case other objects may exist, to which the constituents of our group shall bear a greater essential resemblance than that which exists between these last and those with which we have associated them. These two methods of grouping objects have given rise to two essentially different forms of classification, the *natural* and the *artificial*.

From the commencement of Dr. Lindley's career, it has been his grand object to enforce the importance of the natural over the artificial system, as the only legitimate instrument by which an accurate knowledge of vegetable existence may be acquired. It must always be borne in mind that philosophical classification does not attain its end in the simple formation, naming, and arranging of even the most natural groups,—that such are really only the means by which a higher object is ef-

fect, and that a natural method is, in fact, a concise yet complete statement of the actual truths of which the science consists, being, at the same time, the great instrument by which the progress of that science to ultimate perfection is to be accomplished.

It is now about sixteen years since Dr. Lindley placed in the hands of the student, his "Introduction to the Natural System of Botany," which was followed by the "Nixus Plantarum," the "Natural System of Botany," and by several monographic articles, in all of which modifications were adopted of the systems which had been already before the public. It is interesting to observe with what candour the author, in almost every one of these publications, abandons the opinions formerly advanced by himself. We cannot indeed too highly admire this open dereliction of previously advocated doctrines, when found to be inconsistent with truth; this total freedom from all bigoted adherence to a favourite theory, when the progress of science has proved the untenableness of its positions, for by such practice alone can we effect the healthy advancement of knowledge, and the ultimate triumph of truth.

In the work now before us are to be found the latest and most matured opinions of our author, and it will be seen that these differ in several important points from the doctrines advocated by the generality of systematic botanists.

One of the most striking peculiarities in the system of Dr. Lindley, is the large number of primary groups under which he distributes the mass of existing plants. Adopting the important division of flowerless plants into Thallogens and Acrogens, according as they are furnished with, or deprived of a distinct axis of growth, he unites the Balanophoræ, Cytini, Rafflesia, and their allies, into a group of primary value, under the name of Rhizogens; and separating the smilaxes, yams, and some other allied families, from the Endogens, with which they had been previously associated, he raises them also, under the appellation of Dictyogens, to the rank of a distinct class, which is distinguished from the Endogens by the reticulated venation and deciduous character of their leaves, as well as by the circular deposition of the wood of their perennial stems around a central pith. In like manner the Coniferæ and Cycadaceæ are dissociated from the Exogens, and made to constitute the primary group of Gymnogens. In accordance with these views, our author characterizes the classes of plants as follows:—

"Asexual or flowerless Plants.

Stems and leaves undistinguishable.	I. THALLOGENS.
Stems and leaves distinguishable	II. AROGENS.
	2 F

"Sexual or flowering Plants.

- Fructification springing from a thallus . . . III. RHIZOGENS.
 Fructification springing from a stem :
 Wood of stem arranged in a confused
 manner, youngest in the centre; co-
 tyledon single.
 Leaves parallel-veined, permanent ;
 root much like the stem internally. . . IV. ENDOGENS.
 Leaves net-veined, deciduous ; root
 with the wood in a solid concentric
 circle V. DICTYOGENS.
 Wood arranged in a concentric or uni-
 form manner, youngest at the circum-
 ference ; cotyledons two or more :
 Seeds quite naked V. GYMNOGENS.
 Seeds enclosed in seed vessels . VI. EXOGENS."

In the necessity for the dismemberment of the flowerless plants, adopted in the above arrangement, we fully concur; indeed we would carry our division of these vegetables somewhat further, for we believe the vascular ferns to be at least as widely separated from the evascular mosses, as these last are from the fungi. The presence of a well-developed vascular system is surely a character not subordinate to the possession of distinct stems and leaves.

To the validity of the three new classes of Rhizogens, Dicotyogens, and Gymnogens, it is by no means so easy to give an unqualified assent. Whatever may be said of the claim of the Rhizanthus to constitute a distinct class, we have, we must confess, no small difficulty in assenting to the elevation of the Smilacées and Gymnosperms above the rank of merely secondary groups.

In the formation of the subclasses of Exogens, Dr. Lindley rejects the characters drawn from the polypetalous, monopetalous, or apetalous condition of the flower, as well as those afforded by the presence or absence of albumen in the seed, which last characters he had himself, in his previous publications, considered as of paramount importance. In the present work, the essential organs of fructification are assumed as those alone whose variations will afford legitimate characters, out of which the exogenous subclasses may be constructed. These subclasses will accordingly stand as follows:

- "Flowers absolutely unisexual I. DICLINOUS.
 Flowers hermaphrodite :
 Stamens not adhering either to calyx
 or corolla II. HYPOGYNOUS.

- Stamens adhering to either calyx or
corolla III. PERIGYNOUS.
Stamens, calyx and corolla all adhering
to the side of the ovary IV. EPIGYNOUS."

We believe no primary division of the Exogens, in any way available for practical purposes, has yet been attempted which has not been essentially artificial; and though our author's arrangement has advantages over those previously in use, we do not think that in this he has made much advance towards natural grouping. We cannot indeed see, in the different degrees of adhesion of the stamens and ovary to the floral envelopes, more than in that of the parts of these envelopes to each other, anything beyond characters of very subordinate importance in a natural classification. The time has not yet arrived for the construction of natural exogenous subclasses. There is not one of the systems at present before the world which, if rigidly carried out, would not give rise to unnatural associations and forced separations. The method of Dr. Lindley we believe to be one of the best of them, and yet it would not be difficult to point out instances of the defect to which we allude: as, for instance, in the *Ericaceæ* and *Vacciniaceæ*, orders allied to each other by the very closest points of resemblance, and yet, in the arrangement before us, occupying widely separated positions.

It is in the groups which, under the name of alliances, are placed immediately above the orders, that one of the most important features in Dr. Lindley's great work is to be found. The improvement of these groups, to the use of which the way was opened by Agardh and Bartling, has been a favourite object with Dr. Lindley in his numerous publications; and though they are not all as natural as could be desired, we cannot speak too highly of their value in botanical science, theoretical and practical.

A few remarks remain to be made with reference to the English names introduced by our author as synonymes of the classic appellations of the orders, and here we must confess our sympathies are by no means in favour of the new terms. When the word retains its Latin or Greek construction, changing only its termination into an English form, as in such terms as "*Cucurbits*," "*Taccads*," "*Chenopods*" (to quote from the very examples which our author has given as affording instances of the advantages of the practice), formed from "*Cucurbitaceæ*," "*Taccaceæ*," "*Chenopodiaceæ*," we cannot see how the English name will be one whit more easily recollected than its classic parent, while on the contrary an additional burden is absolutely laid on the memory; for unless it is intended that the English names

shall supersede the others, the student has now to learn two terms instead of one. With such words, on the other hand, as are more purely English, such as *Urn-Mosses*, *Birthworts*, *Primworts*, the unclassic reader will perhaps feel more at home; but here the same objection lies, that unless an absolute substitution of the English for the classic terms takes place, the memory will only be additionally burdened. And indeed, after all, the great danger, and almost the only circumstance which makes it worth while objecting to the practice, is, that this very substitution will unconsciously take place, and the classic and universally accepted nomenclature of botany give way before a host of vernacular names, of loose application and local intelligibility.

But, perhaps, this is only hypercriticism. The few points on which we have just commented can scarcely be said to affect the merits of the great work before us, a work which, whether we consider the value of the original views contained in it, the lucidness of its arrangement, the copiousness and beauty of its pictorial illustrations, or the truly German labour demanded in its production, must ever be looked upon as supplying a desideratum of the greatest possible importance to the student, and marking an era in the history of British botany.

Researches and Observations on the Causes of scrofulous Diseases.

By J. G. LUGOL, Physician to the Hospital of St. Louis, &c., translated from the French, with an Introduction and an Essay on the Treatment of the principal Varieties of Scrofula. By W. HARCOURT RANKING, M. D., Cantab., Physician to the Suffolk General Hospital. London, 1844.

Scrofula,—its Nature, its Causes, its Prevalence, and the Principles of Treatment. By BENJAMIN PHILLIPS, F. R. S., Assistant-Surgeon to the Westminster Hospital. London, 1846.

THE most remarkable of the opinions entertained by Lugol is his belief that scrofula is *always* a disease of hereditary origin, and that no accidental circumstances have the power to produce it unless the germ has been previously derived from a tainted stock. This doctrine prevails throughout the whole work, and to establish it the author has expended much time and labour. The position thus assumed (if a false one) is calculated to produce a seriously injurious effect upon the minds of his readers, for the principle which it involves must naturally exert a considerable influence upon their prophylactics.

That scrofula is very frequently imparted to the offspring from the parent will be readily admitted, but that the disease never can originate without an hereditary predisposition in the

patient, is a proposition which ought to be received with the greatest caution. Those who have witnessed the rapid effects of certain deleterious agencies, particularly imperfect ventilation and over-crowding, in developing the scrofulous cachexia in children to all appearance previously healthy, will be slow to agree with Lugol; and the certainty with which, in our zoological gardens and menageries, tubercular disease attacks wild animals, when removed from a state of nature and subjected to artificial habits and restraint, shews that comparative pathology is opposed to our author's views.

In using the term "hereditary origin," however, Lugol evidently applies it in a much more extended signification than is usual with the profession in this country, for he considers that parents who are themselves totally free from scrofula, and in whom no hereditary tendency to the disease exists, may nevertheless, from having acquired certain states of ill health, transmit scrofula to their offspring, and such a disease in the child he would consider one of "hereditary origin." In this country, on the contrary, those diseases are usually alone considered to be hereditary, which appear in the individual with the same essential characters as they have already exhibited in some of his progenitors.

One of the most fruitful causes of scrofula in children, according to Lugol, is a venereal taint in one or other of the parents; and he also adds:

"Those who have abused the sexual instinct, who marry too early or at too advanced an age, those whose bodily vigour is disproportioned to that of the other parent, are all in a condition which is unfavourable to reproduction, and which inflicts upon them the sad lot of becoming parents of none but scrofulous children.

"A man must have passed the age of puberty by several years before he will have the power of procreating healthy children: he must himself have arrived at his full strength and development to be able to impart the elements of constitutional vigour to his offspring; the reunion of these conditions cannot in general be counted on before the age of twenty-five; and all marriages, therefore, contracted earlier than this age, must be considered precocious and unlikely to be productive of other than weakly progeny.

"We have seen that the faculty of reproduction is deficient in vigour in those who marry too young, and whose organization is, therefore, not sufficiently matured. We shall see, in the present article, that the offspring of aged parents is still more generally scrofulous; that as soon as parents begin to descend into the vale of years, they are no longer capable of engendering robust infants, and that the offspring decreases in vigour in direct ratio with the increase of years, until, at length, none but abortive embryos are generated.

"The decadence of the procreative faculty commences about the age of forty-five years; it is not very evident at first, but becomes sufficiently apparent after the lapse of a few years.

"The remarks which have been made regarding the father, are equally applicable to the mother. In proportion as a woman approaches the critical period, her fecundity undergoes a diminution, and the child of her age seldom possesses the germs of a healthy constitution. This period, in women, commences about forty, and is completed in the course of a few years. After this period pregnancy is frequently an illusion; their infants perish before or a few days after birth, and if one be reared, it is endowed with a debility of constitution which, sooner or later, assumes the character of scrofula.

"It is an essential condition in the procreation of healthy offspring, that the husband should be some years older than the wife. We have met with many cases of scrofula which could not be attributed to any other cause than a disproportion in the respective ages of the parents, the father being younger than the mother.

"The study of the relations between the sexes shews that in all classes of animals, and in every respect, power is the privilege of the male. The relative superiority of the man ought to be the fundamental law of marriage, and the natural condition of the individuals contracting the alliance. Whenever this comparative state of power is absent, and the man is relatively the more feeble, he not only loses the moral ascendancy which ought to characterize him, but his reproductive faculties are likewise debased. We think that we have ascertained by minute inquiries upon the subject, that a man may become even positively impotent, in consequence of an exaggerated degree of relative inferiority. This cause of hereditary scrofula has frequently been ascertained in the course of these investigations: the more we reflect upon it the more simple and evident does it appear. We have thought it the more necessary to bring the point prominently forward, because the opinion is generally prevalent, that the feebleness of the father's constitution may be compensated for by the vigour of the mother: we can confidently assert that such is far from being a general rule; we believe, on the contrary, that a man can never energetically impregnate a woman who is much more vigorous than himself."

In these views of Lugol, he has assumed sufficient latitude to enable him to explain the occurrence of scrofula in every case by hereditary transmission; but he goes further still, as, in his opinion, the frequency of adulterous intercourse will afford satisfactory explanation of the hereditary origin of the disease in many instances, where, at first sight, no such cause is apparent.

"It has appeared to us," he says, "that, in order to render our observations complete, we ought to have taken into account the effects of adultery. The most casual observers are occasionally struck with characteristics

in some children which are very distinct from the general family complexion, and which evidently originate in illicit intercourse. In some cases, also, scrofulous diseases are absent in a family in which, from the constitution of the father, they would be expected to appear; and, again, we notice the elder children to be born scrofulous and the latter healthy. Such facts, rigorously investigated, are based upon the laws of hereditary transmission, and, so far from being exceptions, they are really confirmatory of that law."

On the subject of the hereditary origin of scrofula, the opinions entertained by Mr. Phillips are much more in accordance with the result of our own experience; and as he has drawn his conclusions from statistics collected with incredible assiduity, and from the most ample sources, they are entitled to the fullest consideration.

To determine the extent to which hereditary causes operate in the propagation of scrofula, Mr. Phillips either examined himself or procured the examination of upwards of 2000 families, each consisting of from three to five children, and living as nearly as may be under similar circumstances, in the metropolitan, the factory, and the rural districts. In one portion of the cases, both parents were apparently free from the scrofulous taint; in another portion there was reason to think that both parents were tainted; in another that the father was tainted; and in another the mother. The result shewed that although an hereditary influence was apparent, and existed in each class, yet, at the maximum, it did not appear to be quite four per cent.; and on the entire the influence of a scrofulous mother upon the offspring was greater than that of a scrofulous father. His inferences are thus alike opposed to two parties, of which one maintains that the disease is always hereditary and never acquired, and the other, that it is never hereditary, but that it is always the result of circumstances which come into action after birth.

"I have sought to determine," he says "what is the extent of the influence which the constitution of the parent exercises in the development of scrofula in the child; and I have maintained that the influence of this cause, though real, is less energetic than is commonly supposed, and is, I conceive, quite insufficient to explain the prevalence of the disease. I do not, however, mean to say, that one child does not come into the world with tendencies whereby he is prepared to profit or to suffer more than another from the influence of the circumstances which surround him; but I do mean to convey my strong conviction, that, whatever may be his condition on coming into the world, it will be modified, either for good or for evil, by the circumstances to which he is exposed during childhood: they may tend either to develop a vigour-

ous constitution, or to produce scrofula or other diseases. Let us suppose a child to be the issue of parents in robust health, to be blessed with a strong constitution, shewn by its vigour and its tone; let that child be placed under circumstances calculated to debilitate him, let him be badly fed, let him breath impure air, let his habitation be damp, his person neglected, and the effects of these influences on his constitution will be marked enough; his person will be blighted, and tubercle and scrofulous matter will be deposited in different organs."

Speaking of the opinion which attributes scrofula in the child to a syphilitic taint in the parent, Mr. Phillips proceeds:

"I know no well-proved fact which can be received as evidence, that a syphilitic taint in the father or the mother can, *exclusive* of other causes, produce scrofula in the child. I do not deny but that a scrofulous child may proceed from a syphilitic parent, yet that is no proof that the child becomes scrofulous because the parent was syphilitic; and we have abundant proof that it is not usually scrofula, but syphilis, which, under those circumstances, is entailed upon the child. When a scrofulous child proceeds from a syphilitic parent, we shall usually find that he has been placed under circumstances which would have been likely to determine the disease, even if the parents were healthy."

Summing up the various arguments on both sides of the question, he says:

"I arrive at the conclusion that scrofula and syphilis are independent the one of the other; that each has a character proper to itself, and that the same treatment is inapplicable to both diseases. For example, if scrofula be rife where syphilis is rare; if syphilis affects all periods of life, while scrofula is more confined to a particular period; if hereditary syphilis be manifested at or soon after birth, while scrofula unfrequently appears before the second or third year; if syphilis, whether inherited or acquired, be rarely cured spontaneously, and if, as every one knows to be the case, scrofula often disappears at the approach of puberty; if syphilis usually yield to mercurial treatment, while scrofula does not; should we not conclude that the one has no dependence on the other? Besides, if scrofula were derived from syphilis, it surely would not be rare to find it in those children who have resulted from infected parents, and to whom syphilis has been hereditarily transmitted. But how frequently do we see syphilis thus communicated, and how rarely, at the same time, do we find the child presenting a scrofulous taint.

"Many persons, again, cling to the opinion that the age of the parents influences the development of scrofula in the child. I do not deny that children born of parents advanced in life, as well as those born of youthful parents, may present less vigour than the offspring of persons in the prime of health and strength, but it is not proved that they usually become scrofulous."

Another subject upon which a striking difference of opinion prevails between Lugol and Phillips, is the relation in which scrofula and pulmonary consumption stand to each other: the French author maintaining that phthisis is a truly scrofulous disease, whilst the other is at equal pains to point out what he considers essential differences between the two maladies. After dwelling upon the facts which seem to prove that scrofula and consumption are identical, Lugol declares "that the natural death of the scrofulous is by consumption." Whilst Phillips devotes an entire chapter of his book to shew that the diseases in question possess *no* identity.

We cannot attempt to present our readers with a detail of the arguments by which Mr. Phillips seeks to establish his views; but he must permit us to remark, that the profession will scarcely admit a distinction which the best observers have considered to be unfounded. Indeed the author himself acknowledges that the eye, even with the aid of the best microscopes, cannot detect the slightest difference between the so-called scrofulous deposit and pulmonary tubercle, and that the chemical analysis of these products does not determine any clear distinction between them. Now, with such facts before us, it will require something more than a trifling difference in the vascularity of the products, or in the periods when scrofula and phthisis destroy life, or in the proportions in which they effect each sex respectively, to work a revolution in medical opinion.

Lugol has taken especial trouble to shew that abortion is a common consequence of the scrofulous taint in one or other of the parents, and he appears to us to have overlooked altogether a constitutional disease which much more frequently leads to the same result, we allude to syphilis. On perusing what he has written upon this subject, it is impossible to avoid the conviction that he has, in many instances, wrongfully attributed to scrofula what was really due to syphilis; and such an oversight seems to be the more remarkable in an author who wrote in a metropolis where illicit intercourse is so very common, that he has assigned adultery in explanation of those cases which are apparent exceptions to the hereditary origin of scrofula.

We are confirmed in this view when we read, at page 140, that he considers abortion to be more frequently the consequence of the degradation of the generative faculty in the male than of a fault in the same function in the female. In one case which fell under his observation, the mother had miscarried five times consecutively, at four months and a half; she was herself of a healthy constitution, but *her husband was a dissipated*

man. In this instance he attributes the abortion to scrofula, whilst the supposition that it might have been produced by a venereal taint in the "dissipated husband" never once occurred to him. A very high authority, M. Ricord, regards scrofula as very frequently the result of hereditary syphilis.

The statistical information obtained by Mr. Phillips and arranged in his book is of infinite value, and we scarcely know whether to admire more the untiring industry which he has exhibited in collecting the materials, or the philosophical spirit evinced in his inferences from them. We feel assured that so extensive a collection of facts bearing upon the causes, the nature, and the treatment of scrofula, has never before been submitted to the medical profession. To the treatment of scrofula a large section of his work has been devoted, in which the value of the different remedies which have from time to time enjoyed the reputation of specifics for the disease, is fully considered. The practical remarks with which this part of the volume abounds are sufficient to convince us that the author possesses a thorough knowledge of their remedial effects, and that, in addition to the most extensive research, he also merits the character of a sound practitioner.

To the work of M. Lugol, an essay on the treatment of the principal varieties of scrofula has likewise been appended by its translator, Dr. Ranking. This contains some good practical hints; but his reliance upon the efficacy of iodine as a specific for the disease is, so far as our own observations have enabled us to judge, much too implicit; and in his universal condemnation of issues and other local remedies which are usually employed against scrofulous disease of the spine and joints, as well as in his unqualified recommendation of active exercise to those who are suffering from scrofulous caries of the joints of the lower extremities, he has shewn himself too ardent an admirer of the doctrines of Lugol.

PART III.

REPORTS, RETROSPECTS, AND SCIENTIFIC INTELLIGENCE.

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.

THE CIRCULATING SYSTEM.

1. *Malignant Deposition in anterior Mediastinum compressing and perforating the superior Cava ; Extensive Deposit of the same Kind in the lesser Omentum ; Tumour in the Axilla.*—Mr. O'Ferrall presented specimens of malignant structures taken from a man aged between 45 and 50, who had been under the care of Dr. Aldridge six months ago, for a tumour of an irregular form in the left axilla, which was suspected to be glandular. He was prescribed for, and was then lost sight of for some time. When he re-appeared he had a puffy swelling of the left side of the neck, pain in the left side of the chest, and hæmoptysis. In this state he was admitted into St. Vincent's Hospital, some days before Mr. O'Ferrall, who was then unwell, saw him. When Mr. O'Ferrall examined him, there was a well-marked tumour on the left side of the neck. There was another tumour in the axilla, prolonged under the pectoral muscle; it lay anterior to the true axillary region, and to the touch resembled a malignant tumour. There were signs of pleuropneumonia of the left side of the chest, but none could be detected of malignant disease within the chest, although from the appearance of the patient's countenance, and the existence of the tumours on the neck and in the axilla, Mr. O'Ferrall diagnosed the existence also of intrathoracic tumour, which however was not indicated by auscultatory evidence. Under the treatment adopted in the hospital the hæmoptysis was checked, and then a new train of symptoms appeared: there came on a puffy swelling of the right side of the neck, extending to the arm of the same side, and then down into the hand; the arm and hand became very painful, tense, and shining, especially the back of the hand; there was also increased temperature of this limb; the pectoral region also was engaged in the swelling. Stimulant medicines and wine being indicated, were now exhibited. After

a few days it was found that the external jugular vein of the right side was dilated and solidified, and a dulness was detected at the sternal end of the right clavicle. The patient gradually sunk. During the course of his illness he had occasional gastric attacks with vomiting; these were relieved by hydrocyanic acid in doses of from one to two drops. It was remarkable, too, that the fingers of the right hand were purple and cold up as far as the metacarpus, beyond which all the rest of the limb was hot on the surface and œdematous. In the examination of the body after death, the axillary tumour was taken out, and its structure on investigation proved to be malignant; a portion of it had been examined under the microscope by Drs. Houston and Aldridge, who had detected in it all the characters of carcinoma. In the thorax there was a small amount of similar malignant matter, extending across the anterior mediastinum, where it had interrupted the circulation in the superior vena cava, whose coats were at some points destroyed and perforated by the tumour which projected into the vessel. The effects of the thoracic tumour had been principally on the circulation in the veins, and but little on the function of the lungs; hence the absence of physical signs, so that Mr. O'Ferrall had to form his diagnosis in a great measure on the rational signs leading to the conclusion that a tumour did exist within the thorax. In the lower part of the left lung there was pulmonary apoplexy. The stomach had a large cancerous mass attached to it, contained in the lesser omentum, between the two orifices of the stomach, which approximated towards each other; this mass had not yet perforated the stomach, being still covered by the mucous coat; it was remarkable that in this case there had been few symptoms of gastric disease.—*April 27th, 1844.*

2. *Hæmorrhagic Pericarditis; Circumscribed Pleuritis; Bronchitis.*

—Dr. Lees said that the specimen which he then presented, and which he had only obtained early that morning, might be regarded as a well-marked instance of two important diseases—pericarditis, and pleuritis in a circumscribed form. The subject from which it was taken, a female æt. 68, was moribund when admitted into the Meath Hospital two days ago. She was then in a state of collapse, with an anxious countenance; pulse 100, and very feeble; action of heart very rapid; and intense bronchial râles audible all over the chest. She had every symptom of congestive bronchitis. She had been twelve days ill; and her sickness had commenced with pain in the side. In the hospital she lay on her right side; when she sat up, the entire of the left side of the chest sounded dull, and only bronchial respiration was audible over it. No crepitus could be detected in any part of the chest; nor did any change of position indicate the gravitation of a fluid. In the region of the heart Dr. Lees thought he perceived a frottement, but it was doubtful; the tracheal râles being so loud, it was only occasionally audible, and was then somewhat like the sound which would be produced by one coat sleeve being rubbed upon another. There was no bruit. Dr. Lees considered

the case to be one of pneumonia complicated with pericarditis, and the prognosis was, of course, most unfavourable. The patient continued to sink, and died on the day after her admission. When the body was examined after death, a turbid fluid was found in the sac of the pericardium; the serous surface of the pericardium throughout its entire extent was covered by a reticulated structure, giving it the appearance of the honeycomb stomach of the calf; it presented a good example of the hæmorrhagic pericarditis of Laennec. The substance of the heart itself was congested, but there was no symptom of endocarditis, nor was there any vegetation on its valves; in the left ventricle was a large coagulum which extended into the aorta. There was a circumscribed effusion into the left pleura of turbid serum with flocculi of lymph; an adventitious membrane, which was easily scraped off, covered the surface of the pleura in this situation. Dr. Lees was doubtful as to the period at which the pericarditis had occurred in this case; it might have been very recent; the rapid formation of false membranes, especially in old persons, has been remarked by Andral.

3. *Abnormal condition of aortic Valves; Enlargement of the Heart; Thickening of mitral Valves.*—Dr. Law said, that although to connect symptoms observed during life with the morbid changes discovered after death was a primary object of the Society, yet he had a specimen now to present in which several organic lesions were observable, but of which he could not detail the history, as the subject from which it was taken, a female, had died in Sir Patrick's Dun's Hospital within a few hours after her admission. The specimen exhibited a remarkable extent of disease of the aortic valves, and also considerable enlargement of the heart, with dilatation of the aorta, the coats of which presented extensive atheromatous degeneration with osseous deposition in several places. Two of the aortic valves were thickened, especially at their free margins; and the third had its margin turned towards the ventricular orifice, reminding Dr. Law of the condition of the lower lid in some cases of ectropium. These valves were rendered quite inadequate to their office, and the left ventricle was in a state of eccentric hypertrophy. The mitral valves were but slightly diseased; their margin being a little thickened. The left ventricle formed more of the apex of the heart than usual; and the cavity of the right was unusually small. Dr. Law was of opinion that disease of the left auriculo-ventricular and aortic orifices more frequently co-exist than is generally supposed; and according as one or other lesion is the more developed, its symptoms mask those of the other.

4. *Aneurism of Arch of the Aorta felt under right Mamma; Pericarditis, with Effusion.*—Sir Philip Crampton presented the recent specimens concerned in a case of aneurism of the arch of the aorta. The communication should have been made to the Society by Dr. Tice, of the Royal Military Infirmary, in whose absence he could only give an outline of the case, which was interesting for the light which it was capable of throwing on the diagnosis of aneurism

within the thorax. The subject, a soldier who had served in tropical climates, was admitted into the Royal Infirmary, labouring, as was supposed, under pleuritis, for which he was treated. On Christmas Eve he complained of pain of a severe kind in the chest, and then Dr. Tice discovered a pulsating tumour under the right mamma. Sir Philip Crampton saw the patient for the first time on last Wednesday; he was then walking about the ward; he complained of a sense of constriction in the chest. In the examination, Sir Philip observed that the pectoral muscle of the right side had been pushed up by the pulsating tumour, which was very large; its impulse was very strong, and raised the hand applied to it. The impulse of the heart itself was feeble, and only one sound was audible, the second sound not being heard at all, the contrary to what would be observed in a case of solid tumour. In this case the apex of the heart was the point at which its sound was audible, and from this, as you approached the tumour, it became more and more distinct. From the auscultatory evidence and the symptoms, Sir Philip diagnosed aortic aneurism. The patient died yesterday. In the examination of the body it was found there had been pericarditis; the pericardium was filled with fluid, and this had evidently prevented the sounds of the heart from being heard distinctly, and had also diminished its impulse. The heart itself was not hypertrophied. Sir Philip observed, that he had himself conjectured the existence of effusion in the left pleura, and that this had pushed the heart towards the right. The aorta itself was sound, as far as the junctions of the first and second portions of the arch, where there was an opening large enough to admit the thumb; this led into the aneurismal sac, which was very large, and had become adherent anteriorly to the walls of the thorax. In this situation, the finger passed into the sac could feel the denuded rib, from which the periosteum had been at that part removed by the action of the aneurism.—11th January, 1845.

5. *Diseased aortic and mitral Valves; Effects on Figure of the Heart; Ramolissement of left Corpus Striatum; Purulent Effusion in left cerebral Ventricle, and at the Base of the Brain.*—Dr. Law presented a specimen of diseased heart, exhibiting a considerable amount of thickening of the aortic and mitral valves. The subject, a man æt. 24, who had been cook to an East India vessel, and had led an irregular life, was attacked with spitting of blood, dyspnoea, and cough, which led to the supposition that he was labouring under phthisis. Dr. Law, on examining his lungs, could detect nothing morbid, except mucous râles; but on turning his attention to the heart, he observed that the impulse was considerable, a double bruit was audible at the lower part of the sternum, and a single bruit in the left mammary region. In the hospital he got better, went out, and afterwards returned. When he was again brought under Dr. Law's notice, he appeared quite stupid and listless; his face was flushed, and the temporal artery was throbbing, yet there was less action of the heart than previously, and the abnormal

sounds were no longer audible. He replied but slowly to questions; his left side was partially paralysed; and a female who accompanied him mentioned that he had had fits during the previous night. His head was now ordered to be shaved; leeches were applied, and calomel and James's powder administered. Under this treatment he had in eight or ten days nearly recovered from the paralysis, when he suddenly became comatose while at stool, fell forward, and died almost immediately. On opening the cranium, much fluid blood flowed from the sinuses and superficial veins. On examining the brain, a quantity of greyish purulent matter was found, covering the pons Varolii, and adhering to the interior surface of brain. This matter extended to the vertebral canal, and into the left ventricle; the corpus striatum of that side was softened, and presented an appearance like a mixture of blood and cerebral matter; beyond this, externally, the substance of the brain was in a state of ramolissement. The heart exhibited a double lesion, both the aortic and mitral valves being diseased, and this, Dr. Law remarked, also affected the form of the heart itself; for when the aortic valves only are diseased, the heart is elongated and hypertrophied; but in cases like the present, where the mitral valves also are engaged, the heart assumes a more rotund figure than in the other case. In this patient, too, although there were symptoms indicating disease of both these sets of valves, yet those of one or other always predominated. Dr. Law, after demonstrating the conditions which he had described in the specimen, observed, that it often happens in practice that a sympathetic affection of some organ distant from that primarily affected, masks or conceals another disease, as Dr. Greene had already pointed out in a case where a disease of the stomach had been overlooked. [*Vide* Proceedings of 29th April, 1843; and of 21st December, 1844.] In the present case there was neither rheumatism nor dropsy, but the bronchitis had at first prevented disease of the heart from being suspected. Constant bronchitis often accompanies disease of the mitral valves. An affection of the brain, as connected with disease of the heart, was first described by Richerand, in the case of Cabanis, who died of apoplexy consequent on hypertrophy of the left ventricle of the heart. Lallemand remarks, that ramolissement is often connected with defective nutrition of the brain, and often connected with encephalitis. Rostan, from observations made at Salpêtrière, was the first who maintained that this was always the case. The present instance Dr. Law regards as one of defective nutrition, and illustrates this view by a case of exsanguinous ramolissement connected with disease of the mitral valves, which occurred in the Richmond Hospital.—18th January, 1845.

6. *Enlarged Heart, with Contraction of the left auriculo-ventricular, and of the aortic Orifice.*—Dr. R. Adams presented a heart, in which both the aortic and the left auriculo-ventricular orifices were contracted. The subject from whom the specimen was taken was a gentleman æt. 40, whose countenance gave no indication of

any disease of the heart. Fifteen years ago he had a rheumatic fever, which might be referred to as the origin of the heart disease. During the last six months of his life he found that going up stairs, or riding on horseback, induced dyspnoea. By degrees he became unable to endure any degree of exercise beyond very moderate walking. He had little or no cough, except during the prevalence of influenza; but he became quite exhausted every morning by the mere exertion of dressing himself, a symptom often observed in cases of this kind. Dr. Adams observed that the pulsation at the wrist was very weak and irregular, while at the heart it was very strong, and the beats more numerous than in the arteries. It was found that the left side of the chest was dull from its inferior anterior boundary up as high as the second rib. There was strong impulse in the situation of the heart's apex. With the first sound there was heard a soufflet, which extended along the great vessels, and was very distinct at the apex of the heart. The diagnosis arrived at was, that the heart itself was enlarged, that the aortic orifice was contracted, and that the left auriculo-ventricular opening also was contracted. This patient laboured under a presentiment that his death would be sudden; this was verified by the result. He had not, at any time during the progress of the disease, either headach or turgescence of the veins of the neck. He had neither anasarca nor ascites, nor did he become emaciated. On the day before his death (in September, 1844) he appeared to be quite healthy, and in the evening walked out with his children, and remained out until eleven o'clock at night. At three o'clock, A. M., the next morning he experienced a sensation of faintishness, and took some camphor julep; he complained of feeling cold in the bed, and when daylight appeared he was found dead. His lips were livid; the immediate cause of death had been asphyxia. The heart itself, as had been diagnosed, was found to be greatly enlarged; the left auricle, which was dilated, contained laminated coagula; its lining membrane was studded with earthy spiculæ, and was contracted, and assumed the form of a semilunar fissure which was closed by coagula: this might have been the immediate cause of death. Dr. Adams had met with similar phenomena in a former instance. The heart in the present instance presented the form which Dr. Law had just described as characteristic of this double lesion (*vide supra*). Dr. Adams proceeded to describe the anatomical characters of contraction of the left auriculo-ventricular opening, as he had already described them in the Dublin Hospital Reports in 1827, to which he referred; these characters were well exemplified in the specimen now produced. The semilunar form of the opening was especially remarkable, the concavity looking forwards being formed by the greater portion of the valve. He also referred to Dr. R. B. Todd's article on abnormal conditions of the heart (in the Cyclopædia of Anatomy and Physiology), in corroboration of his own views, long since published. He concluded with some observations on the case of a boy named Reilly, who died in the Richmond Hospital, in whom a soufflet with the

first sound was traced to a ruptured chorda tendinea.—18th January, 1845.

7. *Gangrana senilis*.—Mr. Carmichael produced several specimens and drawings illustrating a case of disease with which he believed that all present were already well acquainted, but which he considered in this instance to exhibit some interesting circumstances. The disease is described under various names,—Pott's mortification; dry gangrene; and gangrana senilis. The patient in this case was a gentleman between sixty and seventy years of age, subject to gout, who had lived well and enjoyed every comfort, and to whom Mr. Carmichael was called during November, 1844. The disease had commenced as a small black spot on the toe next to the great toe of the left foot, which slowly extended itself, but was not painful. Mr. Carmichael examined the condition of the circulation in the affected limb, and could detect no pulsation in the femoral or even in the iliac artery of that side. He advised that the patient should be removed to Dublin, which was effected in a day or two afterwards. After his removal the disease still continued to progress: the great toe and the other toes became engaged, and the disease gradually crept up the instep and to the calf of the leg. A consultation was held with Sir P. Crampton, and Drs. Cusack and Adams, but no plan of treatment was capable of controlling the disease; all that could be effected being an alleviation of the patient's sufferings, which were now becoming very great. There was much constitutional disturbance, and the pulse was irregular; but the patient asserted that his pulse had always been irregular, and Mr. Carmichael remembered that on a previous occasion, about a year before, when he had attended him, he observed this character of the pulse; and at the same time there was a numbness of the toes of the right foot, which made Mr. Carmichael apprehensive that paralysis might be impending. After the leg became affected by the gangrene, there was very frequent delirium, constant anxiety, and complaining; and for three days before death, which occurred two days since, there was a continual gasping for breath. The gangrene did not reach as far as the knee, but before death took place it was observed that no pulsation could be felt in the femoral artery of the opposite limb. The examination of the body was made yesterday: the heart was fatty and softened, and the aortic valves were slightly ossified. The liver was pale, or rather ash-coloured. On opening the left iliac artery, fibrine was found deposited in it, and pus had formed in one portion of it; the femoral artery was plugged up in the same manner. At the opposite side, the femoral artery was similarly obstructed. Some of this fibrine was white, some tinged by the colouring matter of the blood. The left iliac saphena and the renal veins contained coagulated lymph, which Mr. Carmichael exhibited to the meeting. The appearances were also illustrated by drawings. Mr. Carmichael referred to some other cases of this disease which had come under his notice, in one of which the gangrene stopped at the knee, and in hopes of saving the patient, he

sawed through the bone, but the patient finally sunk, exhausted by the disease. In another case amputation was tried, but without success. Mr. Carmichael then adverted to the various opinions which have been held as to the cause of this disease. Mr. Pott ascribed it to an ossified condition of the arteries; but this does not always occur in connexion with it, and in the present case the walls of the arteries did not appear at all affected. Dupuytren attributed it to inflammation of the arteries, and therefore advised venesection. In the early stage of the present case leeches were applied along the course of the arteries of the limb, but without effect, or rather the patient appeared worse afterwards. As to the cause of the separation of the fibrine from the blood, it was to be recollected that the heart was very weak, and the pulse had been always intermitting; so that Mr. Carmichael is disposed to connect it with the weakened power of circulation; and the obstruction itself may thus be the immediate cause of the gangrene in the extremity of the limb. Mr. Carmichael has known senile gangrene to succeed to diabetes mellitus. Mr. Adams had seen an instance of this disease in a patient who had diabetes previously; and Sir H. Marsh has met with another instance. No such occurrence has been noted by authors; but whether there be any necessary connexion between diabetes and senile gangrene remains to be investigated by future observers.—*1st February, 1845.*

8. *Mitral Valves thickened; Hypertrophy, with Dilatation of left Ventricle; Dilatation of right Ventricle, with Attenuation of its Parietes; Hemiplegia.*—Dr. Law presented a specimen of diseased heart, which he considered interesting from its having been connected with a secondary affection of the brain. Before describing it, he referred to the case which he had lately communicated to the Society, in which there was disease both of the heart and of the brain. [*Vide Proceedings of 18th January, 1845.*] In that case the brain could not have received its due supply of blood, there being a double obstacle in the circulation, produced by the diseased condition of the aortic and mitral valves, from which resulted, as he had before observed, a ramollissement of the brain consequent on deficient nutrition. In the present case the mitral valves only were affected. The subject, a strong man, æt. 32, a labourer, and of irregular habits, had suffered from heart disease during two years, and had received the advice of several medical practitioners. When Dr. Law saw him, he remarked, on making his examination, that there was an extreme irregularity in the action of the heart, which was tumultuous, but weak; there was also irregularity of the pulse at the wrist. With the first sound there was an obscure bruit. To percussion, the cardiac region sounded dull in the line of the transverse axis of the heart. The countenance had the blue tint of cyanosis; the extremities were cold, and there was a general deficiency in the power of maintaining the natural temperature; there was some cough and difficulty of breathing, but no indication of dropsy, nor had the patient ever laboured under rheumatism. The treatment

adopted by Dr. Law consisted of stimulants, with nutritive diet; under this he improved for some time, until he happened to get a cold, his breathing became oppressed, and the stethoscope indicated the existence of pneumonia. Dr. Law now reluctantly ordered venesection to the amount of eight ounces, but only half that quantity had been drawn when convulsions came on, and the arm was bound up. On the following day Dr. Law observed that the mouth was drawn towards one side, and that the patient had become hemiplegic; the heart's action also was exceedingly feeble. The stimulant treatment was now resumed, and with benefit, the hemiplegia disappearing. Dr. Law lost sight of the case from this period, but learned that another attack of hemiplegia subsequently occurred, after which the patient sunk. There was no examination of the state of the brain, but the heart, which was large, had been given to him by Mr. Nicholls, and was now laid before the meeting. The left ventricle was dilated and hypertrophied, and the auricle also dilated; the right ventricle was dilated, and its walls thinned. The most important lesion was a peculiar thickening of the mitral valves, and a change in the figure of the auriculo-ventricular opening, which was not, however, so elliptical as that described by Mr. Adams—[See p. 231 of this No.] In the present specimen the opening appeared divided into two, one anterior, one posterior, and each of a circular form; this was produced by a shortening of the chordæ tendineæ and an hypertrophy of the carnea columnæ. There was osseous deposition in the valve itself. The lungs were congested, and presented several patches of pulmonary apoplexy. Dr. Law attributes the irregularity of the heart's action in this case to the peculiar lesion of the auriculo-ventricular orifice. In the case described by Mr. Adams, irregularity of the pulse was remarked. In the present instance the irregularity was observed both in the heart's action, and in the pulsation at the wrist. Dr. Law then alluded to a case in which a similar irregularity in the heart's action and in the arterial pulse was observed, but which disappeared when the administration of digitalis was suspended. The connexion between the cerebral and the heart affection in this case is worthy of notice, and this connexion generally ought to be more attended to than it is, and hence may lead to important improvements in the treatment of apoplectic seizure.—8th February, 1845.

THE RESPIRATORY SYSTEM.

1. *Scrofulous Infiltration of the right Lung; Tubercular Abscess containing cretaceous Matter in the Liver.*—Dr. Greene presented recent specimens of scrofulous disease of the lungs and liver, taken from the body of a man, æt. 50, a car-driver, who was admitted into Sir Patrick Dun's Hospital, under the care of Dr. G., on the 3rd December, 1844. Three months previously this man had been in the same hospital, labouring under pneumonia of the right lung, for which he was treated with success by one of the physicians, and discharged. He resumed his usual occupation, in the course of

which he received a severe wetting, which was followed by a return of similar symptoms to those of the former illness. When Dr. Greene examined him on his re-admission he was labouring under inflammatory fever; the pulse was 110, and somewhat hard; tongue loaded; bowels confined, &c. The patient complained of pain in the inferior portion of the right side of chest, and of obscure pain in the hypochondrium of same side. The respiration was hurried, and for the most part abdominal: there was constant cough, with tenacious, orange-coloured sputa, scanty in amount, expectorated with difficulty and pain. The pain in the right mammary region was increased by inspiration. On percussion, the two inferior thirds of the right portion of the chest sounded dull, both anteriorly and posteriorly; the subclavicular region yielded a clear sound, as did also the entire of the left side. In the dull part of the right side the respiration was somewhat bronchial, and a loose crepitus existed. The resonance of the voice was louder than natural in this situation. In the right infra-mammary region a double friction sound was distinctly audible, synchronous with the respiratory motions: this was evidently produced by the ascent and descent of the lung, and was not connected with any affection of the heart or pericardium. The sounds of the heart were audible at the right side. Throughout the left lung the respiration was puerile. Dr. Greene having diagnosed an acute pleuro-pneumonia, adopted an active line of treatment, consisting of cupping, blistering, the use of tartar emetic, &c., by which the patient was greatly relieved; but the cough and pain in the right side did not completely disappear. At the end of a fortnight the respiration again became laboured, the dulness of the right side was observed to be extending upwards, the stethoscopic phenomena were renewed, and the cough became more troublesome. Mercurial medicines were now resorted to, and for some time with advantage; but the improvement was not permanent; emaciation proceeded rapidly, and the treatment was now limited to stimulant expectorants, nutritious diet, and occasional blisters to the right side. The disease lasted six weeks, during the last fortnight of which the patient gradually fell away, and the physical signs underwent a remarkable alteration. On the 2nd of January, 1845, it was remarked that the dulness of the right side had disappeared, and was succeeded by a tympanitic clearness; and in this part the respiratory sound could no longer be perceived, and the friction sound had also disappeared. Posteriorly, under the angle of the right scapula, a gargouillement could be heard, and the voice was there loudly resonant. From this Dr. Greene conjectured that the pneumonia had resulted in abscess, which in this country is a very rare termination of that disease. The patient continued to sink, and at last died, apparently from exhaustion. The appearances observed in the examination after death explained the symptoms. On opening the right pleura some air gushed out, and about three ounces of purulent fluid flowed out afterwards. The entire of the serous membrane was

thickened and opaque, and flakes of loosely attached lymph could be lifted from it with the forceps. This deposition of lymph was co-extensive with the dulness, which in this case reached even to the spinous process of the scapula, an extent rarely met with. The lung itself was the seat of extensive deposit of tubercle; the inferior lobe presented an almost solid mass of apparently scrofulous matter, and near its base were two cavities, each capable of containing a large walnut. The terminal branches of the pulmonic veins were traced into these cavities, but the vessels were not found to contain any scrofulous matter, though there have been instances of cancerous and cephalomatous matter having been found in the emulgent veins. In the middle lobe the scrofulous matter was less abundant, and appeared in the form of the ordinary tubercle of phthisis, numerous and closely aggregated, while in the upper lobe these tubercles were more sparingly scattered. The left lung was enlarged so as to overlap the heart, and encroach also on the right pleural sac; its two inferior thirds were emphysematous, but otherwise not affected. The liver was not much enlarged, and its surface was quite smooth. On cutting into it, there was discovered an isolated scrofulous tubercle, not surrounded by any induration of the tissue of the liver; its contents had a caseous appearance, with cretaceous matter in the centre. Dr. Greene remarked, on exhibiting these specimens, that this case had been originally pneumonia, which was succeeded by scrofulous deposition in the lung, of which it afforded a good example: he also thought it might be argued whether this deposition was different from tubercle. In practice, when pneumonia is intercurrent, or easily returns, as it does during the progress of phthisis, then the existence in the lung of some permanent source of irritation, such as deposit of some sort, is always to be suspected. The history of the present case, in Dr. Greene's opinion, confirms this observation.—18th January, 1845.

2. *Foreign Body accidentally lodged in Larynx.*—Mr. Maurice Collis produced the recent parts concerned in a case which exemplified strongly the difficulty of dislodging a foreign body from the larynx. A boy æt. 6, the child of a dressmaker, accidentally swallowed (as was supposed) the hook of a lady's dress, on the 16th of January. On the next day Mr. Collis saw him at the Meath Hospital, when he presented the symptoms of a foreign body in the larynx, sufficiently urgent to justify the operation of laryngotomy, which was performed at 3 P. M. on that day; the thyro-cricoid membrane was divided at first by a small opening, which was then enlarged in the vertical direction both upward and downwards, but still the foreign body could not be found; the cartilages were now divided in both directions, and attempts made to detect the foreign body. Sir Philip Crampton and some others who assisted thought that they felt it; Mr. Collis could not. Efforts were made with a probe and with a forceps, but still without success. A gum elastic catheter was then passed through the wound upwards into

the mouth, but still without dislodging or finding the foreign body. By this time the boy had become very weak and exhausted, having been an hour on the operating table, and it was determined to postpone for a few days any further attempts. After this bronchitis supervened, which was appropriately treated. On the 23rd some efforts were again made to dislodge the foreign body, but unsuccessfully, as the slightest contact with the wound caused an intolerable degree of irritation. The medical treatment for the bronchitis was continued, and directions given to keep the wound free from mucus. On the evening of the 23rd his respiration was tranquil, but there was mucus collecting about the wound, which was from time to time cleared away by the resident pupil, who saw him for the last time at eleven o'clock at night, and, observing that his breathing continued quick, consigned him to the care of his mother, as the best nurse that could attend him through the night. It appeared from the account given by his mother, that after this his respiration became more laboured, the wound became more clogged with mucus, and he expired during the night. On slitting up the larynx from behind, the foreign body (the hook of a hook and eye) was found in the left ventricle of the larynx, where it was held spasmodically by the arytenoid muscles, close to the extremity of the wound. The patient had always referred his distress to this very spot. There were the usual symptoms of inflammation within the larynx, vascularity of the lining membrane, &c. The friends would not allow the lungs to be examined.

THE GENITO-URINARY SYSTEM.

1. *Horse-shoe Kidney; Renal Calculus.*—Dr. Lees presented several recent specimens, with an illustrative coloured drawing, of a case of renal malformation and co-existent urinary disease. The subject of the case, a male, æt. 22, a watchmaker, had been occasionally under Dr. Lees' care during the last two years. On the first occasion of Dr. Lees attending him, the patient complained of pain in the back, sickness of the stomach, and general uneasiness. Dr. Lees remarked that his urine was of very low specific gravity, not exceeding 1.005; it was alkaline when just voided, and deposited aropy mucus: when analysed, it was found to contain a very small proportion of urea. The patient was said to have passed a small calculus when he was about ten years of age, and there had been ropy mucus in his urine from his infancy. The same circumstance had been observed in the urine of his mother. By appropriate treatment he was at that time relieved. He had, however, several similar attacks at subsequent periods, and it was conjectured that he laboured under degeneration of the kidney, with probably a granular condition of it. A fortnight ago, Dr. Lees was requested by the father of this patient to see him, on account of another attack of illness. This he attributed to exposure to cold, after which he had been seized with pain in the back, weakness, and nausea. Dr. Lees found him greatly emaciated, and in a state of

complete prostration of strength; his abdomen was retracted; he was suffering from pyrosis and diarrhoea, but there was no dysuria; the tongue was dry; pulse 100, and very feeble; there was tenderness to pressure along the course of the ureters; the urine and the mucus mixed in it were both alkaline. On the next day a consultation was held with Mr. Smyly: the opinion formed was, that there was calculus probably impacted in the ureter. Means were decided on for alleviating, as far as possible, the sufferings of the patient, which resembled those occasioned by the worst form of sea-sickness. Two days afterwards a hard tumour could be felt in the abdomen, towards the right lumbar region, and a little above the level of the umbilicus: the abdomen here was tender to pressure. This tumour admitted of being moved laterally. Was this, then, the calculus? That question could not as yet be solved. Dr. Lees continued to see the patient, and saw him for the last time only an hour before his death; he then complained of extreme lassitude, and was so feeble that he could not move a limb without assistance. He died in a state of syncope.

The body was examined after death by Mr. Williams. Notwithstanding the general emaciation, there was a considerable depth of fat in the integuments of the abdomen. On throwing aside the omentum and intestines the tumour came into view; it was covered with fat, and lay near the spine; to the touch it gave the sensation of having something hard, and of irregular figure, imbedded in it. Closer examination discovered that, in this case, the kidneys were united into one, forming the *horse-shoe kidney* of authors, and it was within this that the calculus was felt; both the arms of this united kidney contained calculi. The pelvis of the right was filled by a large calculus, the protuberances of which extended into the calices; this calculus was white, perfectly smooth, and exhibited a cast of the cavity of the kidney. The tubular structure had been obliterated, and the cortical was congested, and in part inflamed. The ureters were pervious, and slightly dilated. The bladder was not contracted in size, nor were its walls thickened, and they did not present any columnar fibres, a state of that organ which confirmed the opinion which had been formerly given by Sir P. Crampton, and another medical gentleman who had sounded this patient, and had both decided that the bladder was on those occasions free from disease. When examined now, it was observed that scattered over the mucous coat were numerous vesicles which contained a gelatinous fluid. [This appearance was represented in a drawing.] The lungs and other contents of the thorax appeared healthy.

The urine during the patient's last illness was examined both chemically and with the microscope; there had never been any sabulous matter in it, and only once a slight tinge of blood. When a drop of the urine was placed in the field of the microscope, very minute acicular crystals were observed in it. When the urine was submitted to re-agents, neither potassa nor ammonia threw down any phosphates; the acicular crystals which were found consisted of the

ammoniaco-magnesian phosphate. The mucus was examined by applying acetic acid to it, in the manner directed by Dr. G. A. Bird; the effect was to corrugate it and form a peculiar membraniform matter. [This matter was exhibited to the meeting.] A portion of the exterior of the calculus was also examined chemically, and was found to consist principally of phosphate of lime, with traces of the triple phosphate. Its nucleus had not yet been examined, nor had a section of it been made.

Dr. Lees concluded his description of these specimens by observing, that he believed this was the first instance on record of a renal calculus having being felt through the abdominal parietes during the patient's life, and he is of opinion, that there are circumstances in this case which may assist in the diagnosis of abdominal tumours. He also remarked the assistance to be derived from a knowledge of congenital malformations; it was the malformation of the kidney which in this case had brought it forward on the spine, so that it could be perceived by pressure. This shewed the practical bearing of the case, in which there was also to be noted the existence of hereditary predisposition, the mother of this patient having died at the age of 40, similarly affected; she had been attended by the late Dr. A. Colles, but no examination of the body was made. In neither case were there any dropsical symptoms.—1st February, 1845.

2. *Hair firmly attached to a coriaceous Body, enclosing a Nucleus of Bone discharged from an ovarian Abscess, opening spontaneously on the Abdomen near the Umbilicus.*—Dr. Montgomery presented a very remarkable specimen of the contents of an ovarian tumour, for which he mentioned that he was indebted to Dr. William Colles. The subject from whom it was derived, a young woman, a servant in the country, under circumstances warranting the suspicion of impregnation, found the catamenias suddenly to cease. Some months after this, a painful tumour could be perceived in the right hypogastrium, which gradually enlarged, and pointed a little to the right of the umbilicus, where an opening formed. In June, 1843, Dr. Montgomery first saw her, and there was then protruding from the opening a lock of hair which could not be dislodged, every attempt to withdraw it inducing hæmorrhage. This appearance was represented in a drawing which Dr. Montgomery now produced, and which he had shewn to the Society on a previous occasion, when he alluded to this case. [Vide Proceedings of 6th January, 1844.] There was from time to time much foetid discharge, together with masses of hair from the fistulous opening in the abdomen; but the remarkable lock which protruded and remained attached at one extremity, still baffled every effort to remove it, though Dr. Colles dilated the aperture to facilitate its extraction. In March or April, 1844, she returned to the country, and soon after menstruated once, and her general health became much improved. In December, 1844, she returned to Dublin, and soon afterwards the lock of hair was discharged, attached to a substance of a leathery consistence,

enclosing a nucleus of bone, towards one extremity of which was a bit of bone resembling a split tooth. After this the condition of the patient improved greatly, but the abdomen was still enlarging; a few days ago, on pressing it with the hand, a distinct motion was felt within, and yesterday she was delivered of a living child. The impregnation must have occurred immediately after her return to the country in a broken-down state of health. Dr. Montgomery exhibited specimens of the hair which were discharged at various times during the progress of the case, as well as that which so long remained protruded through the abdominal parietes.—12th April, 1845.

3. *Ovarian Cyst of immense Size, containing Hydatids and glairy Fluid.*—Sir Philip Crampton said, that he had to present a very important preparation. The case was one of ovarian cyst, and its subject a lady aged about forty, in whom the disease had commenced nine years ago, from which time the tumour had gradually enlarged, until its bulk gave the patient the appearance of a female in the eighth month of pregnancy. Except by its size, it caused but little inconvenience until last year, and then the principal annoyance was a continual micturition; there was often dysuria, and sometimes retention, until at last she became unable to pass water, except in the supine position, and even then could not completely discharge the contents of the bladder. This, however, not being sufficient for the evacuation of the tumour, a large trocar was introduced, and about five quarts of a brown glairy fluid were drawn off. The patient fainted, but was recovered very soon, and next morning was cheerful and even gay, was free from pain, and able to pass water readily. Sir Philip, however, warned her brother of the possibility of inflammation supervening, favourable as the appearances were, and directing that if vomiting, or pain, or any unusual symptoms occurred, he should be sent for immediately. Unfortunately this direction was not sufficiently attended to. On Monday morning, at 6 A.M., the patient felt sickness of stomach, and vomited some bile, after which she became very faint; at half-past seven her sister was called up, who found her in a state of excessive prostration. Sir Philip was not sent for until eleven o'clock, and on his arrival he found her already dying; the pulse could not be felt at the wrist, nor at any point from that to the axilla. She suffered severe pain from the commencement of the attack up to her death, which occurred at two o'clock in the afternoon of the same day, eight hours from the commencement of the symptoms of danger.

The body was examined after death; there was no trace of inflammation in the abdomen, in the pelvis, nor in any of the viscera. The only cause of death discoverable was, that some of the fluid of the cyst had passed into the peritonæum. The cyst, which was very large, had many hydatids adhering to its inner surface. This would have been an admirable case for extirpation of the cyst, if such an operation had been decided on, for the cyst had but one small adhesion, occupying a space of about a quarter by an eighth of an inch, while every other part of its

surface was free, and had no adhesion whatever. The death in this case resembled that which succeeds to the rupture of an intestine, and is a mode of termination to life after an operation, that has been very rarely noticed. In some circumstances it agreed with the case described by Dr. O'Ferrall on last Saturday. In the case now described, there was the difference, that the effused fluid was not purulent. In all such operations some fluid is likely to escape, yet consequences of this kind are exceedingly rare. In at least nineteen out of twenty cases, no such result happens, yet as that one in which it would happen might be the very first to occur to the operator, he cannot be too cautious, and Sir Philip arrived at the conclusion, that in all cases the operation is to be postponed to the last moment,—till the tumour has formed adhesions: so long as it is floating about on the abdomen, his advice is, not to meddle with it.

MEDICAL PERISCOPE.

By J. OLIVER CURRAN, M. B., T. C. D., M. R. I. A.,

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WHEN we look around us to observe what is the position that medicine at present occupies in the world, it is impossible not to perceive, that it is at once effected by intestine feuds and foreign wars. Everywhere we find old doctrines, with all the rust and mould of antiquity upon them, disputed and rejected, and new medical systems of the most discordant descriptions springing up side by side, and engaged in continual and most ruthless conflict with each other. We have hydropathy curing patients with whole lake-fuls of medicine; homoœpathy prescribing doses as imponderable as the rays of the sun; and mesmerism, exorcising disease by a mere thought or look; whilst within the temple of *Æsculapius* itself, the *médecine expectante* or *hygiénique* is found walking hand and hand with the advocates of heroic doses of calomel, quinine, opium, &c., &c. One class of physicians explain everything by the doctrine of equivalents, and exhibit their views in chemical formulæ; whilst the chief occupation of another class is turning these views into ridicule, and exhibiting their injurious tendencies. From all this turmoil and confusion we anticipate nothing but good. Truth cannot suffer by the fullest inquiry, and the conflict of opposing systems by giving a stimulus to investigation, and by compelling men to be more precise and logical in their reasonings, will eventually shew to the world medicine purified and invigorated by that furnace of trial in which all the various *pathys* that trade on popular ignorance and misconception shall have been utterly consumed and destroyed.

It is really not to be wondered at, that men accustomed to follow implicitly a certain set of rules laid down in text books, finding some of their most established and most venerated maxims assailed

by unanswerable arguments, should feel their faith in the science of medicine completely shaken, and that they should be ready to fall victims to the first specious sophism by which they are assailed. To those who are guided merely by the rules laid down by others, without inquiring for themselves, and who have not considered how many things popularly believed have never been proved in any way,—what so astounding, or so likely to give birth to Pyrrhonism, as proof that the plague is not capable of being conveyed in merchandize to distant countries;—that a large number of pulmonic and other inflammations will get well without any, or even in spite of treatment;—that the delirium of fever may often be removed by large doses of wine, and the sanguineous effusions of purpura by mere purgation with turpentine; that quinine may be safely and advantageously exhibited in rheumatic fever; sulphate of iron in painters' colic, and opium in constipation, &c.; all which have been most satisfactorily made out by modern investigation. The truly philosophic physician seeks only to class together facts as antecedents and consequents, and, by increasing the number of the former in each group, to render the probability of this connexion as cause and effect nearer to absolute certainty; and hence his faith in the rules of his art is but little shaken by such facts as we have alluded to, since, falling completely beyond his own actual experience, they therefore do not properly conflict with it.

By far the most momentous of the medical questions which have attracted public attention during the past six months, is that of the contagion of plague. This has to all intents and purposes been decided by the French Academy (though the same fact was proved by our friend Dr. Bowring, long ago), against the popular notion. The whole matter has, however, become so much of a political question, that it is unnecessary to enter into it here. Another subject, nearly allied to the former, is the contagion of fever, and the validity of the distinction which Gerard and most writers after him, have endeavoured to make betwixt the endemic typhus of this country and of France. This question we discussed at some length in a previous Number of this Journal (*a*).

Since the discussion in the French Academy which drew our attention to the subject, so many instances of the propagation through whole families and neighbourhoods of well-marked typhus fever, and of the occurrence in the same circumstances, and at the same place and time, of similar fevers, with and without the intestinal ulceration, have been published in various French and Italian journals, that we think no doubt can now be entertained that the *dothinerite* is but an *accident* which is more or less constantly present in fever, according to the locality and the time. The treatment of the two affections, typhus and typhoid fever, where distinguishable, seems also to be based on the same general rules.

The reappearance of epidemic variola in different parts of the world, but more especially in the northern portion of the American

(a) Dublin Journal, vol. xxviii., p. 168, former series.

union, has drawn fresh attention to the protective powers of vaccination(*a*). Everywhere it has been found that a negligent method of performing vaccination had grown up in the communities most severely visited, and, both here and in America, the frequency of variola after *careful* vaccination has been found to be less than after the natural pox itself. Dr. D. B. Bradley, an American missionary physician, has made great and most praiseworthy efforts to introduce vaccination into Siam, and his efforts have been successful to a considerable extent. He has made the curious observation, that during the rainy season of September and October, it was not merely almost impossible to propagate the vaccine pustule, but even to preserve the matter uninjured, though enclosed in hermetically sealed vessels. In Siam the vaccine pustule loses its power of reproduction before it is fully developed; and Dr. Bradley found that even small-pox was not capable of being communicated by inoculation with the scab. It was almost exclusively by the receipt of regular supplies of vaccine matter from Europe, that he was enabled to continue his efforts. Strange that the rapidity of development and decay, so characteristic of tropical climes, should be observed even in the history of a pustule! Dr. Bradley attributes the destruction of the vaccine virus not to temperature or humidity, but to a peculiar electrical state of the atmosphere(*b*).

The influence of vaccination practised in the commencement of variola on the course of each affection, has been of late very ably examined by M. Clerault(*c*), in an inaugural thesis presented to the faculty of medicine of Paris; and from a comparison of 111 cases of coincidence of variola and vaccinia, M. Clerault finds that, in the great majority of instances, both affections are by coexistence considerably modified in their symptoms, course, and duration; that each, after the fifth day, is fully capable of exerting its full protective power against the other; that the irregular vaccine eruptions are most likely varioloide; and that the apprehensions entertained by Barthez, Rilliet, and others, of vaccinating young children affected with variola, are quite destitute of foundation.

Among the various means which have at different times been devised to prevent the unsightly scars produced by confluent variola, the mercurial applications are at once the most ancient, and, perhaps, the most efficacious. A writer in one of the April Numbers of the *Gazette Médicale*, strongly advocates a favourite French application for this purpose, *Vigo's plaster*, spread over the part at as early a period as possible. MM. Gariel and Charcellay have found this efficacious even after the seventh day, and in some cases later, whilst cauterization with nitrate of silver is

(*a*) There is an excellent account of the epidemic at Heidelberg in 1844, by Dr. Hoefle, to be found in the third Number of the *Medicinische Annalen*, B. xi., but we are not aware of any published account of the others.

(*b*) Boston Medical and Surgical Journal, Nos. 14 and 15.

(*c*) *Du Développement de la Variole et de la Vaccine et de leur Influence réciproque; thèse présentée Aout 28, 1845.*

useless after the fourth, and, it would appear, is generally less efficacious. In the March Number of the *Révue Médicale*, there is given a case of ptyalism from the employment of a mercurial plaster in the treatment of variola, but the result proved eventually favourable. Mercurial frictions of a very extensive kind have been employed for many years by Goblin, and it would appear with great benefit. Dr. Corrigan employs a coating of Emplast. Plumbi, melted with oil of almonds, and laid on with a camel's hair pencil. Larrey preferred the simple application of gold-beaters' leaf. The most surprising effects are attributed to the following application by Dr. Thielmann of St. Petersburg(a):—Corrosive sublimate, one grain, dissolved in seven ounces of distilled water, to which is added a drachm of laudanum. Compresses wet with this lotion are to be kept on the part, and changed five or six times a day. Fully matured pustules are said to have disappeared rapidly under the use of this remedy. The most singular specific is, however, that recommended by Dr. Fritz of Muchlan, viz., fresh cow's milk, a glass-full two or three times a day, which, with cold mucilaginous food, and plenty of milk and water, or pure water, for drink, suffice to bring about a speedy cure in mild cases; but, in more severe ones, the external application of milk by baths, or compresses often renewed, is also necessary, and will rarely be found to fail(b). Scalded buttermilk is a popular, and by no means inefficacious, remedy in this country.

With the exception of spinal arachnitis, which is described in another part of this journal, no other essential diseases have attracted much attention in the medical world of late, and we shall, therefore, pass on to those affecting particular organs. By far the most novel and interesting of the recent researches into the causes of disease are the papers on the pathology and treatment of diabetes, by MM. Bouchardat and Sandras. But, fully to understand them, it is necessary to glance over the present state of our knowledge in reference to digestion. This may appear somewhat irregular under the head of a medical periscope; but it would be impossible to explain properly MM. Bouchardat and Sandras' views respecting diabetes without entering into the physiological doctrines on which their notions of the pathology and therapeutics of that strange disease are exclusively based. The theory of digestion suggested by modern observations and experiments has, in no work that we know of, been at all exposed; yet as the subject is as interesting as it is novel, whilst of the value of the new views in directing our practice, we have ourselves seen evidence. Food is the medicine that we all take most of; and besides, the greater portion of our therapeutic agents require to pass through the digestive canal, in order to produce their characteristic effects on the system; we conceive, therefore, that correct notions of digestion lie at the very basis of the practice of medicine, and are of much more importance in influencing treatment than is generally supposed.

(a) *Gaz. des Hopitaux*, p. 72. 1846. (b) *Gaz. des Hopitaux*, t. viii. p. 113

THE PHYSIOLOGY OF DIGESTION, AS ILLUSTRATED BY MODERN EXPERIMENTS AND OBSERVATIONS.

We propose to lay before the reader a short sketch of what is novel regarding the physiology of the digestive process, illustrating the subject by such facts, from various sources, as appear to bear immediately on the more disputed points, and giving only so much of the experiments as will enable the reader to form his own opinion as to the value of the conclusions arrived at.

Changes which the Food undergoes in the buccal Cavity.—In entering on the study of digestion, we naturally, and most conveniently, commence with the mouth, where the food first enters the alimentary canal. The uses of the teeth in bruising and dividing the substances destined for our support, so as to fit them for being passed with safety into the stomach, or for being submitted to the action of menstrea, are too obvious to have ever admitted of discussion; but the question has very naturally been raised, whether this bruising and grinding be equally indispensable to the process of digestion in the case of semi-fluid or gelatinous substances, or of such as have been already sufficiently bruised or divided before being introduced into the mouth. In order to be in a condition to answer this question, it is necessary that we should inform ourselves as to the action and uses of the saliva, a fluid which, during mastication, we know to be poured out in great abundance to mix with the food. In doing so, however, we shall endeavour to avoid entering into any unnecessary minutiae, but shall confine our observations as strictly as possible to what has been actually established, or to those analogical arguments which have a direct and immediate bearing on the subject of digestion.

Opinions of Physiologists as to the Uses of the Saliva.—Looking over the works of modern physiologists, we find in them very little more information on this subject than is to be met with in the ancient Greek writers. The general opinion seems to be, that if the saliva has any use at all, it is one which has not yet been proved. Krimer^(a) found some slight power of digestion in the lachrymal fluid, but none very evident in the saliva. Donné^(b) attributes to the latter the function of neutralizing the gastric juice whilst digestion is not going on, and this opinion is also advocated by Eberle^(c) who supposes, however, that the free alkali and the nitrogen contained by the mucus of the saliva, give to that fluid some slight degree of digestive power. The solvent power of the alkali of the saliva is also maintained by Truttenbacher^(d), whilst Schultz^(e) went so far as to assert that the saliva plays a more important part in digestion than the gastric

(a) *Versuch einer Physiologie des Bluts*, p. 23.

(b) *Archives Générales*, 2^{me} série, t. viii. (c) *Physiologie der Verdauung*, s. 151.

(d) *Der Verdauungs-process*, s. 48. (e) *De Alimentorum Concoctione*, p. 99.

juice itself. On the other hand, we have the father of chemistry, the great Berzelius(*a*), whose researches in organic chemistry are still unequalled for accuracy and minuteness, as well as for the truly philosophic caution and total absence of a theorizing spirit which singularly characterizes them, laying it down as the result of his experiments that, "La salive par elle-meme n'extrait des matieres alimentaires rien de plus que ce qui pourrait leur être enlevé par de l'eau pure à la temperature ordinaire." This was also the conclusion arrived at by Helm(*b*), Muller(*c*), Simon(*d*), Lassaigne(*e*), and many others; whilst, as Dr. Baly remarks, "the experiments instituted by Drs. Beaumont and Purkinje(*f*) rather tended to shew that saliva retards the solvent action of the gastric juice(*g*)."
 Liebig, whose notions with regard to oxygen constitute almost a monomania, looks on the particles of saliva as the extravascular representatives of the blood globules, or "oxygen carriers," as he calls them. His views are explained in the following quotation: "In the action of the gastric juice on the food, no other element takes a share, except the oxygen of the atmosphere and the elements of water. This oxygen is introduced directly into the stomach. During the mastication of the food there is secreted into the mouth, from organs specially destined to this function, a fluid, the saliva, which possesses the remarkable property of enclosing air in the shape of froth, in a far higher degree than even soap-suds. This air, by means of the saliva, reaches the stomach with the food, and there its oxygen enters into combination, while its nitrogen is given out through the lungs(*h*)."

Chemical Characters.—The composition of saliva has been very carefully examined by almost all the chemists who have turned their attention to organic analysis, and the observations on it, that have been published, are almost innumerable; several of the most accurate are given in the Sydenham Society's translation of Simon's work on the Chemistry of Man, but when we find in all of these more than 20 per cent. of the solid constituents put down to the account of that unknown something *Extract*, some 30 or 40 more ranged under a title equally vague, and 8 or 10 per cent. unaccounted for, it is evident how very loose and unsatisfactory must be all determinations of the kind; and when we go a little farther, and compare together the results arrived at by different analysts whose eminence places them above suspicion of inaccuracy or incapacity, and find that they totally disagree in a multitude of very important particulars, it is evident that or-

(*a*) *Chemie*, t. vii. p. 244.

(*b*) *Zwei Krankengeschichten*, s. 15.

(*c*) *Physiology* by Baily, vol. i.

(*d*) *Physiologische und Path. Anthonus*.

(*e*) Brought forward in papers read before the Parisian Academy of Sciences, in May and June, 1845.

(*f*) *Isis*, 1837, No. 7.

(*g*) Müller's *Physiology*, by Baly, vol. i. p. 576.

(*h*) *Liebig's Organic Chemistry*, in its Applications to Physiology and Pathology, by Gregory, p. 113.

ganic chemistry is as yet too imperfect to enable us to derive much information from what it tells us as to the actual composition of saliva(*a*). We know, indeed, that its specific gravity varies from 1.005 to 1.007, that it contains some fat vesicles, epithelium scales, and a quantity of minute globules, about the 800th part of a millimetre in diameter, designated salivary corpuscles, with nearly one per cent. of fixed substances, consisting of sodium, potassium, and calcium, combined with chlorine, phosphoric-acid, sulpho-cyanogen, and several organic acids; but Bouchardat and Sandras(*b*), Donné, and various authorities, many of whom are quoted by Van Setten(*c*) in his able thesis on the saliva, have fully established that the composition of this fluid is subject to considerable variation from very slight circumstances in man, and that in the rest of the animal kingdom it varies in its characters with the habits or structure of the animal. Chemical investigation, however, applied to discover the properties of some of the peculiar proximate principles contained in saliva, has done much to classify those detached facts derived from physiology, pathology, and experiment, which, without such aid, it was almost impossible to link together, so as satisfactorily to bring them to bear on the subject of digestion.

Several years ago Treviranus observed that a red colour was developed in saliva by a persalt of iron, which was soon shown by Tiedemann and Gmelin to be a proof of the presence in it of sulpho-cyanide of potassium. The truth of the observation and its explanation has been fully established by recent chemists, and any one can easily demonstrate it for himself, but as yet the discovery remains barren of results. Somewhat later, Berzelius obtained from saliva a peculiar organic matter, which he supposed to give to that fluid its viscosity, and any peculiar properties it might possess. This principle he designated *Ptyaline*; and by some physiologists it has been made to play a most important part in the animal economy; but the processes recommended by other chemists(*d*) for obtaining it in a state of purity are so utterly different from those employed by the Swedish professor, that the simplest mode of explaining the discordancy is by supposing, that ptyaline is, like vegetable extract, but a generic term for an otherwise undefinable *product* (and not an *educt*) of the manipulations gone through to isolate it.

The first step towards a true theory of insalivation was, undoubtedly, the observation made by Leuchs(*e*) some fifteen or sixteen years ago, that starch that has been rendered gelatinous

(*a*) See some analyses by Tiedemann and Gmelin, &c., quoted in the eighth volume of Drumas' *Traité de Chimie*, p. 600.

(*b*) *Sur la Salive du Cheval*, in *Supplément à l'Annuaire de Thérapeutique*, 1846.

(*c*) *Observationes de Saliva*, &c. Groningue, 1837.

(*d*) Compare together the processes of Berzelius, Simon, Wright, &c.

(*e*) *Kustner's Archiv. fuer die gesammte Naturlehre*, t. xxii. p. 106.

by boiling, if treated with fresh saliva, becomes converted into a fluid which may be proved to be a solution of glucose (or diabetic or grape sugar). Very soon after it was found by Sebastiano *(c)*, that crude starch digested with saliva loses its property of becoming blue by the application of tincture of iodine, but the fact that saliva changes starch into sugar by being digested with it, although fully proved by additional experiments performed by Schwann *(b)*, Lehmann, and others, received but an occasional passing allusion from physiologists, who seemed content to remain in their ignorance, until M. Mialhe, at the commencement of the past year, succeeded in obtaining from saliva, by a very simple process, a substance in all its properties, chemical and physiological, identical with diastase *(c)* obtained from barley. This identity renders it unnecessary for us to give the experiments performed to demonstrate its action, suffice it to say, that animal or salivary diastase was found to exert no chemical influence whatever on the azotized substances, fibrine, albumen, caseine, gelatine, and gluten; nor on the neutral ternary bodies, cane or beet-root sugar, inuline, gum-arabic, and condensed cellulose; whilst it has a very extraordinary power of effecting immediate and important changes in the qualities of feculent substances, even where the quantity of the latter is more than 2000 times greater than that of the diastase present. Thus if we chew for a few moments a small quantity of starch, we soon find that the peculiar mawkish taste of the starch is being replaced by a saccharine flavour, which is still more marked in the mastication of bread that has been well baked; and in both cases, on examining the chewed morsel, we find a large proportion of the grains no longer capable of being rendered blue by iodine, but which quickly becomes brown on being boiled with a weak potash ley. The conversion of starch into sugar or dextrine, is thus easily and satisfactorily demonstrated.

Turning our attention now to the circumstances which favour or retard this conversion, we learn from the experiments of Mialhe and Bouchardat that the membranous envelope of the granules of starch proves a very powerful barrier to the action of diastase;

(a) In Müller's Archives. 1836.

(b) Van Setten *Dissertatio de Saliva*.

(c) To some of our readers who have not watched the progress of modern organic chemistry, it may be well to explain that by *glucose* we mean diabetic sugar, that dextrine (gum of starch), is the intermediate state between fecula and glucose, and that diastase (from διασπῆμι, because it *separates* starch from all other substances) is the name given by MM. Payen and Persoz to a proximate principle, under the influence of which, in conjunction with heat and moisture, starch is converted into dextrine and sugar—a change of composition which always takes place in the vegetation of barley (malting), and of all amylaceous seeds.

The following is M. Mialhe's mode of procuring "animal diastase":—"Fresh saliva, filtered, is treated with five or six times its weight of absolute alcohol, and more alcohol is added as long as any precipitate is thrown down. The white flocculi, which have fallen to the bottom of the vessel, are then separated by filtration, spread on plates of glass, and, without any delay, dried by a current of hot air of about the temperature of 120°.

hence everything that tends to isolate the granules and to cause the rupture of their envelope, favours, in the same degree, the conversion of the starch into sugar. It is found, therefore, that starch, bruised for some time in a mortar along with powdered glass, is very rapidly acted on by diastase, whether salivary or that obtained from fermented barley; but starch long digested in water so as to form a paste, is still more quickly changed, whilst the liquefaction is almost immediate if the temperature be raised to 140° or 150° , and the points of contact increased by stirring. Creasote, tannin, the mineral acids, and a great number of salts, totally put a stop to, whilst hydrocyanic acid and weak alcohol do not interfere with these reactions—facts which, among others, are brought forward by Bouchardat to prove that the ferment and diastase globules are living or organized bodies. The saliva during health is constantly alkaline(*a*), though it may appear to be neutral from its being mixed with acid mucus. Its alkalinity, doubtless, gives it the power of forming an emulsion with fatty matters (as may be shewn by keeping a small piece of butter in the mouth for some time, when it will be found to form a milky fluid miscible with water) the alkali, however, does not form more than .001 of the whole saliva, so that the quantity of fat thus acted on must be minute indeed(*b*). Saliva is totally without chemical action on the proteine series of compounds(*c*.) Its uses, however, in moistening and giving lubricity to the alimentary bolus, in developing the sense of taste, by keeping the parts in which it is exercised in a proper state of humidity, and in dissolving by the water it contains some of the constituents of our food, are also important and well established, but do not seem to be sufficiently peculiar to render necessary the elaborate structure of the salivary glands. That Providence should have furnished us with a complicated apparatus of the kind, in addition to a large supply of muciparous glands, in order to effect a purpose which could have been more fully answered by the retention in a simple membranous sac, like the bladder, of a portion of the fluids swallowed, seems a most gratuitous supposition, at utter variance with all our notions of design, and equally opposed to the facts which comparative anatomy brings to our knowledge.

Illustrations from Comparative Anatomy.—In the Quadrumana, whose food is either altogether or chiefly of vegetable origin, the salivary glands are even more developed than in man; whilst in the whole class of Carnaria they are some of them absent, and others very small. Again, in the Marsupials, we have the carnivorous opossums with the organs for secreting saliva, particularly the parotids, extremely small; whilst the kangaroo, whose food is exclusively vegetable, has the same organs enormously large. The

(*a*) Donné in *Archives Générales*, 2me. série, t. viii. 58; and Bernard, Thèse pour le doctorat, 1843.

(*b*) Burdach, *Physiologie*, t. ix. 265, &c.

(*c*) Mialhe, *Gaz. Med. de Paris*, 3 me série. I. No. 18. Hood, *Analytic Physiology*, p. 165. Burdach, *Physiologie*, t. ix. p. 319.

contrast is equally great between the rats and other carnivorous Rodentia on the one hand, and the rabbit, hare, &c., on the other. The case of the beaver is particularly in point, since we find that its parotid glands are of enormous size, although the aquatic habits of the animal might, on the common theory of digestion, have enabled it to dispense with saliva altogether. Again, in the Pachydermata and Ruminantia, whose food is chiefly amylaceous, we have the salivary apparatus in the highest degree of development and activity that is any where met with in the animal kingdom, united, as is always the case, to an equally perfect set of organs for bruising and grinding. According to Wagner and F. Cuvier, in the phytophagous Cetacea, which, in all other respects, approach so very nearly to the Ruminantia and Pachydermata in the structure of their digestive organs, we find the rudiments of salivary glands; and in one family of them, the Dugongs, the parotid is of enormous size. None of the zoophagous Cetacea that have been examined have exhibited any trace of a salivary gland. In birds the same relation of the salivary apparatus to the habits of the animal is very remarkable, the salivary glands finding their greatest development in the Gallinæ, and their least in the Accipitres and Palmipedes. In the class of Reptiles it may also be imperfectly traced. There is scarcely a sign of glandular structure of this kind in Chelonian and Batrachian reptiles, whilst several Ophidians, vegetable feeders, have sub-maxillary and sub-mandibular glands of no inconsiderable magnitude. In the whole class of Fishes, the last division of the vertebrata, we find no organ for secreting saliva, and the food in consequence is exclusively animal. The carp, indeed, is a solitary and very remarkable exception, since it lives chiefly on vegetable food, is furnished with a very perfect set of grinders, and has, if not a salivary gland, at least an organ in position, form, and structure not very dissimilar to one(a).

In the Invertebrata, although we meet with tubes, the analogues of the salivary glands, varying in form and character according to the habits of the genus, yet we know so little of the nature of the secretions in this division of the animal kingdom, and the whole conditions under which life is maintained, are so totally different when we pass from the vertebrata to the invertebrata, that it seems scarcely worth while adducing the fact, that salivary tubes are found in many aquatic mollusca, to shew what may be better proved by other arguments, that the uses of saliva are very different from those of pure water.

Illustrations from Pathology.—Pathology, which, next to comparative anatomy, ordinarily furnishes us with the most correct and definite information respecting the uses of organs, throws almost no light on the purposes to be answered by the saliva; since the changes which disease effects in that fluid have not been investigated. Haller observed that its qualities were

(a) See note in page 287.

changed by indigestion(*a*). L'Heretier says it becomes watery in chlorosis; Simon found it acid in acute rheumatism; and Donnè in gastritis and dyspepsia, inflammatory affections of the brain and uterus, intermittent fevers, &c. Brugnatelli detected oxalic acid in the saliva of a phthisical patient, and Mialhe and Bouchardat found that the proportion of diastase was subject to very great variations; but their observations are all far too few in number, and too imperfect, to afford data for reasoning. The only pathological facts bearing on the question, and at the same time sufficiently numerous to eliminate what we call chance, are the cases of salivary fistula of both sides, or of injury to the lower lip, allowing the saliva to escape freely from the buccal cavity. Instances of lesions of this kind giving rise to emaciation which disappeared after a successful operation, have been recorded by Ruysch and others, and we have ourselves met with two cases of an analogous description. Enough, however, we are persuaded, has been already advanced to shew that physiologists have been quite in error in supposing that the saliva is either useless, or a mere substitute for pure water to be mixed with the food during mastication, and we shall conclude this part of our subject by observing that here, as in many other well-known instances, practical observation and experience have long ago led the vulgar to correct conclusions respecting matters which science is only now pluming herself as having just discovered. That saliva possesses the power of producing a chemical change in amylaceous substances, has been well known in the East from the remotest antiquity. The Chinese use saliva as a ferment in panification, and the natives of Guyana, and of some parts of Asia, prepare an inebriating drink from the chewed roots of the *Jatropha manihot*, piper methisticum, and other plants abounding in starch.

Changes effected in the Stomach.—The food, collected into a ball after being properly masticated, is thrown back into the pharynx, and by a peculiar excito-motary action of the constrictors of that tube, is rapidly passed into the stomach. The mucous membrane of the œsophagus is very plentifully supplied with muciparous glands to lubricate the bolus, and by facilitating its downward passage, to protect the parts along which it moves from injury. No one has ever viewed the œsophagus as anything but a conducting tube, the length and form of which vary as circumstances may require. Thus it is very long in the giraffe, whose neck is really a prehensile organ, intended to enable the animal to reach the branches of trees, on which he feeds; long also in the graminivoræ and in the wading birds, from an equally evident cause; short in the lion and tiger, whose cervical muscles must act at advantage in order to enable them to carry great weights in their mouths; and in the elephant, who, though a vegetable feeder, does not stretch out his head to his food, which,

(*a*) *Elem. Physiol.* t. vi. p. 280.

from the weight of the organ, would be highly inconvenient, and require immense cervical muscles, but who carries his nutriment to his mouth by a hand-like proboscis &c., &c. Having cleared the passage of the œsophagus, the food again meets with detention in its dilated extremity, the stomach, where we must next observe the changes which it undergoes.

The older physiologists, whose notions of the phenomena of nature were artificial and mechanical in the extreme, looked on the stomach as an organ intended to act on the food by a process of squeezing and trituration, analogous to what takes place in the crop of the bird. Hence Pitcairn calculated the contractile force of the fibrous coat of the stomach as equal to 12,951 pounds; whilst Fracassini valued it at 117,088, and Wainewright carried it still farther to the enormous sum of 260,000! Closer observation, and a more extended knowledge of the phenomena of life and organization, have now made even the mechanical operations which in some cases accompany digestion, to be regarded but as secondary to other processes chemical or dynamic, which are now universally believed to be the essence of digestion in all animals. No one at the present day even doubts the existence of a gastric juice possessed of peculiar properties. The beautiful experiments of Spallanzani, and the still more conclusive observations of Beaumont, with the subsidiary labours of a long list of other observers, have many years since placed the fact beyond the reach of scepticism. Still, notwithstanding the enormous amount of industry and talent, which in all countries, and during more than half a century, have been expended on the investigation of the phenomena of digestion, we are not yet in a condition to be able to give a full and satisfactory answer to the question,—What is the gastric juice, how is it elaborated, and what part does it play in the animal economy?

It has been said, and with justice, that one of the chief pleasures resulting from the possession of knowledge is the interest with which it invests the most ordinary of the occurrences taking place around us, by regarding them as so many chances towards a farther insight into the arcana of Nature, and by directing us in our inquiries into what is more rare. It seems very hard on this theory to account for the fact that more than twelve cases of gastric fistulæ are on record, some of them very large, and under medical observation during many years, yet Beaumont is the only writer who has turned such opportunities to the benefit of physiology. It is stranger still that, common as is intestinal fistula or artificial anus, no author, save Lallemand, has, to our knowledge, availed himself of this means of studying the action of the digestive tube.

Source of the gastric Juice.—When the existence of a gastric juice was first made out, it was supposed to be secreted by minute glands concealed amongst the papillæ lining the mucous surface of the stomach; but microscopical investigation did not give any support to the idea. More recently Dr. Boyd figured mi-

nute cylindrical cells scattered over the mucous membrane, as the source from which the gastric juice flowed. His ideas received the support of Bischoff, Purkinje, and others; and Müller and Wasmann grafted on them notions in accordance with the theory of cellular development. But in addition to these glandular tubuli being met with in parts which secrete no gastric juice, the successive development and pushing out of the granules, and the whole history of the gastric juice *cytoblastema*, are spoken of so differently by different microscopists, that much additional investigation will be required before they can be ranked among scientific facts. A totally different opinion as to the origin of the gastric juice is held by our friend, M. Bernard, certainly one of the most learned and able of the young physiologists of the day. M. Bernard's observations lead him to the belief that the gastric juice is not a *secretion* but an *exhalation*. According to him, the anatomical elements of the mucous membrane of the stomach are but three in number: first, crypts or follicles for the secretion of mucus; second, the intermediate tissue of vascular papillæ *covered with epithelium*, and identical in form, structure, and use with the intestinal villi; and third, the minute corpuscles first described by M. Gruby, and consisting of crescentic-shaped villi, composed of very fine cellular tissue forming the basis of a vascular net-work, but without any cavity or perforation, and *uncovered by epithelium*. These villi, uncovered by epithelium, M. Bernard regards as the points from which the gastric juice is poured out by exhibition during the state of erythysm or turgescence, of which, as was shewn by Beaumont, Blondlot, and others, the gastric mucous membrane is the seat during digestion. This view of the matter is supported by the following experiments:—

Experiment 1.—In a healthy dog, kept fasting twenty-four hours, the abdominal parietes were divided, so as to expose freely the stomach. All the branches of the splenic artery were then tied, with the exception of the coronaria ventriculi; the stomach was next opened, and its internal surface carefully wiped with a fine sponge. The animal was then killed by dividing the medulla oblongata, and eighty centilêtres of blood just drawn from the carotids of another dog were instantly injected into the arteries of the stomach. Erythysm of the mucous membrane, and the pouring out of an acid fluid were the immediate consequences; but as enough of the latter could not be collected in order to demonstrate its properties, and as it might be objected that the acid was contained in the mucous membrane, the experiment was varied by mixing with the injected blood a little yellow prussiate of potass, a salt which is known not to act chemically on the blood. In this case also, the acid fluid was poured out, and was found to strike a blue colour with a salt of iron—proving that it is really from the blood injected that the acid is thus instantaneously exhaled. This view was farther corroborated by a great number of experiments, the results of which

were in perfect accordance with each other, and of which the following is a specimen :—

Experiment 2.—A healthy dog was fed freely with hashed flesh, and a quarter of an hour afterwards, when the process of digestion might be supposed to be in full activity, half an ounce of water containing one per cent. of yellow prussiate of potass was injected into the jugular vein. This quantity of a solution of the kind may be made to enter the circulation without its giving rise to the slightest accident or inconvenience. The animal, after the introduction of the salt, ate meat offered to him, and did not seem to be in the least degree incommoded. After waiting half an hour, an interval which it is necessary to allow to elapse after the injection, in order to be sure that none of the cyanide remains in the blood, the medulla oblongata was divided. The food had not passed into the duodenum, and the whole mass became blue on the addition of a persalt of iron; the urine exhibited the same reaction, but none of the other secretions or animal fluids gave the least trace of the presence of cyanide, although the intestines, biliary and pancreatic fluids, the salivary glands, &c., were carefully examined. Still it might possibly be objected that the reason why the cyanide was not found in the tears and saliva, was because these fluids had been secreted before the injection of the salt. To ascertain whether this argument had any foundation, the salt was kept circulating in the blood of a fasting animal, and then the secretion of gastric juice being provoked by food, and the tears and saliva by the proper irritants, these fluids were simultaneously examined, and always with the same results.

Experiment 3.—To ascertain whether the exhibition of an acid during digestion is confined to the stomach, or whether it takes place also in other parts of the alimentary canal, a dog was fed on soup containing lactate of iron in solution, and having waited half an hour, in order that some of it might pass into the duodenum, M. Bernard caused a lavement containing the same salt to be administered, and it fortunately was retained; the yellow prussiate was then immediately injected into the veins, and the animal was killed twenty-five minutes after. The contents of the stomach were coloured deeply blue by the reaction of the ferro-cyanide on the lactate of iron, a few bluish patches were visible also in the commencement of the duodenum, but all the rest of the intestinal tube was quite free from coloration.

The following brings us within still narrower limits for the site of formation of the gastric juice, and is as extraordinary as it was unexpected by the experimenter.

Experiment 4.—A solution of sulphate of iron was injected into one jugular of a strong dog, who had partaken of a hearty meal a quarter of an hour previously, whilst a solution of yellow prussiate of potass was injected into the other. The animal was at first a little stupified, but soon recovered, and again began to eat. An hour and a half afterwards he was killed, when the alimentary bolus

contained in the stomach was found tinged of a deep blue colour, but the gastric mucous membrane which was stained with blood, did not exhibit the slightest discoloration, nor was the blue colour developed at any other part of the body. This experiment was repeated three times, with precisely the same results, proving, in M. Bernard's opinion, that the gastric juice does not become acid until it is poured forth on the surface of the mucous membrane, since were it acid in the substance of the membrane, we can scarcely explain the non-development of a blue coloration. This view is further corroborated by scraping the villous surface of the stomach, when the acid reaction, previously well marked, will be found to disappear, the whole thickness of the mucous membrane not being acid, but only its free surface. It must not be supposed, however, as was believed by Montégre, that the gastric juice is secreted alkaline and becomes acid by fermentation; the experiments already detailed, and the well-known ones made by Beaumont, and many others, fully prove the incorrectness of that idea.

The general bearing of the experiments of which we have just given a sketch, led M. Bernard to suspect that the gastric juice is really nothing more than *an exudation of the acids contained in the blood*, an opinion, which, without any knowledge of M. Bernard's experience, one might almost be led to adopt, from a comparison of the extraordinary discrepancies between the various analyses of the gastric juice made by some of the first chemists of the age. M. Bernard's suspicions were converted into something like actual certainty by his proving that—

1. If lactic, phosphoric, acetic, or butyric acids, be injected into the blood, we find them eliminated in the stomach.

2. If solutions of the alkalies, of magnesia, or of iron, be injected into the blood, these bases are never found in the stomach.

3. If salts, such as the lactate of iron, the butyrate of iron or of magnesia, be injected, they undergo decomposition, the acids being found in the gastric juice, and the bases in the urine. If an animal be poisoned by injecting into the blood a solution of cyanide of mercury, the contents of the stomach have a marked odour of hydrocyanic acid, but the mercury can never be detected in it, though it is found in the urine.

4. Whenever a salt not capable of being decomposed in the blood, is injected into the circulation, it is eliminated unchanged in the gastric juice, as was illustrated by one of the experiments detailed in a previous page.

From all that has been said then, it seems very fairly deducible that—

1. The gastric juice is produced exclusively by the mucous membrane of the stomach.

2. That it is formed instantaneously on the ingestion of food, and that its production continues so long as any aliment remains in the stomach.

3. Its formation depends on the state of arterial turgidity, known to occur during digestion.

4. Its composition varies with that of the blood, and is in some measure representative of the state of the latter fluid, at the time of the ingestion of aliment.

5. As one of the functions of the glandular structure in general is to separate from the blood one or more of its *alkalies*, so the peculiar function of the gastric mucous membrane is to separate from the blood the *acids* and undecomposable chemical compounds which that fluid may contain.

Chemical History of Gastric Juice has added nothing—positively nothing—to our knowledge of the gastric juice. Various analyses have been made, but, as might have been expected from what has just been laid before the reader, they differ very widely on almost every point. Spallanzani, who was really the discoverer of the gastric juice, was also the first, in 1783, to ascribe its properties to an acid. Two years afterwards, in 1785, Carminati discovered the very important fact, that an acid is contained in the stomach of carnivorous animals only during digestion; and in 1800, Werner generalized this still more, by shewing that the act of digestion, in all classes of mammalia, is attended by the pouring out of an acid. Montégre, however, whose communication to the Academy of Sciences was made about 1812, attributed the acidity of the gastric juice, the peculiar properties of which he totally denied, to incipient fermentation or decomposition; and it was only in 1824 that anything precise or definite was made known upon the subject, by the publication of the very elaborate and beautiful researches simultaneously, though independently, carried on by Prout in England, and by MM. Tiedemann and Gmelin in Germany. These distinguished chemists and physiologists, travelling by different routes, arrived pretty nearly at the same result, viz., that free hydrochloric acid exists in the gastric juice. Prout, however, denied that the stomach during digestion contains any organic acid; whilst Tiedemann and Gmelin found in it free acetic acid, and in the horse also butyric acid. The publication of the very elaborate and admirable work of MM. Tiedemann and Gmelin attracted to this branch of organic chemistry a great degree of attention, and invested the subject with so much popular interest, that there is scarcely any modern chemist of note who has not added, or tried to add, something to the chemical history of digestion, and almost every thing has in turn been made to constitute the active principle of the digestive fluid. Brugnatelli and Treviranus found hydrofluoric acid in it in some animals, and oxalic acid in the case of a phthisical patient. Schultz, among a host of others, denied the correctness of Prout's opinion as to the presence of hydrochloric acid, and made acetic acid the acidifying principle, whilst the same office was assigned by Matteucci, to positive electricity. M. Biondlot, by a most elaborate series of experiments, and as the result of many analyses of the gastric juice, obtained by means of artificial fistulæ opening into the

stomach, announced that its properties were due to biphosphate of lime exclusively, denying the existence of any free acid in the stomach during digestion. On the other hand, free lactic acid was detected there by MM. Chevreul, Leuret, and Lassaigue, Bouchardat, &c.; phosphoric acid by Dunglison and some others, and formic acid appears also occasionally to have been met with by Bouchardat and one or two other physiological chemists. The papers by M. Melsens, and MM. Bernard and Bareswil, read to the Académie des Sciences, in December, 1844, seem quite decisive as to the acidifying principle of gastric juice. M. Melsens shews that crystals of Iceland spar confined in a closely stopped bottle, filled with the fluid obtained from the stomach of a dog during digestion, are soon rendered opaque, whilst bubbles of gas form over their surface; an experiment which is conclusive as to the presence of an uncombined acid. The fact dwelt on by M. Blondlot, and those who think with him to prove that there is no free acid present in the stomach, is the circumstance, that the gastric juice does not ordinarily effervesce on the addition of a carbonated alkali; but Bernard and Bareswil shew that this is owing to the acid being so dilute, that the small quantity of carbonic acid evolved is immediately dissolved by the water present, effervescence being produced when the gastric juice is artificially concentrated. To ascertain what acid is ordinarily and constantly present, when the diet is not of an acid nature, MM. Bernard and Bareswil fed dogs and other animals on different kinds of food, and carefully examined the constitution of the gastric juice, which they were able to obtain at will by means of gastric fistulæ, previously established by M. Blondlot's method, and the results at which they arrived were, that—

- 1, No free hydrochloric acid exists in the gastric juice.
- 2, Free lactic acid and a little free phosphoric acid is, in every case, to be found in the gastric juice of a healthy animal(a).

(a) The experiments of MM. Bernard and Bareswil on this subject are extremely beautiful, and, to our mind, perfectly conclusive; but we have only room for the following extract from their proofs of the incorrectness of the common opinion, originally promulgated by Prout:

“If starch be boiled with hydrochloric acid it soon loses its property of becoming blue with iodine; whilst lactic acid, even after prolonged boiling, produces in it no modification.

“On the other hand, if starch be boiled with hydrochloric acid, to which a soluble alkali has been added in excess, we find that the starch remains unaltered as if it had been treated by lactic acid alone. This experiment evidently proves that chlorohydric acid cannot exist uncombined, in presence of a lactate, in excess. In the same way it may be proved that free hydrochloric acid is incompatible with the presence of phosphate or acetate in excess.”

Again: “When we add to gastric juice, which we know contains lime, a very minute quantity of oxalic acid, the liquid becomes troubled from the formation of the insoluble oxalate of lime, whilst an equal quantity of the same test produces no cloud in water containing $\frac{2}{1000}$ hydrochloric acid to which chloride of calcium has been added. This one experiment is enough to prove that the muriatic acid exists in the gastric juice as a chloride, and not uncombined,” as is generally supposed.—*Comptes Rendus de l'Académie des Sciences*, t. xix., p. 1287.

MM. Bernard and Bareswil look on the phosphoric acid as derived from the de-

There could not be a more decided proof of the vagueness and insufficiency of the attempts hitherto made to elucidate digestion by merely analyzing the gastric juice, than the fact, that in the latest work on animal chemistry, the Sydenham translation of Simon, the only analysis there given ranges the results under the heads, *Water*, *Solid Residue*, *Organic Constituents*, *Salts soluble in Water*, and *Salts insoluble in Water*, which, as to the information conveyed, might just as well be *x*, *y*, and *z*.

Whatever doubts may still hang over the analytic chemistry of this fluid, its physical and chemical properties have been very ably and very amply investigated by experiments on the gastric juice both in and out of the body, which are to be found detailed in all the ordinary works on physiology. These experiments are, however, in general, available but as a mass of unarranged facts, from which no general conclusions have been drawn, owing to the majority of physiologists having been thoroughly impressed with the idea that digestion was effected solely in the stomach(*a*) by means of the gastric juice, and that sanguification was a gradual process made up of many different stages. If, with Dr. Prout, we divide alimentary substances into three grand categories—1st, albuminous or proteinaceous; 2nd, adipose or fatty; and 3rd, feculent, saccharine, or amylaceous,—an arrangement certainly as well marked and as little artificial as any classification of natural objects that we know of,—we shall find that whilst Schwann, Beaumont, Bouchardat and Sandras, Tiedemann and Gmelin, Payen, and many others, could not observe any peculiar influence exerted by the ordinary acid fluid of the stomach out of the body on the last two of these classes, all experimenters are agreed in assigning to it the power of rapidly dissolving and protecting from decomposition the various compounds of proteine. Unhappily there is a very great want of method in all the experiments on the subject, owing to Prout's very practical classification having been almost entirely overlooked. Nearly all the recorded experiments down to within the last few years refer to albuminous or fatty substances exclusively; and no proper account was taken of the difference between mere breaking down of the latter in consequence of solution of the areolar tissue, and proper solution or chemical combination of the oil with the solvent: still the great and admitted fact of the power possessed by the gastric juice, of very rapidly reducing to a fluid state the animal substances submitted to its action, remained to be accounted for. The experiments of Tiedemann and Gmelin, and afterwards of Beaumont and Müller, having proved that no acid or any known combination of acids, is endowed with a like power, it seemed reasonable to suppose that in digestion there was something beyond the mere play of ordinary chemical affinities. This was the state of the question when,

composition of some phosphates by the free lactic acid. This acid, according to them, is invariably present; but, of course it may, as has previously been shewn, be accompanied by other acids or salts derived from the food which the animal has been using at the time.

(a) Liebig's Organic Chemistry of Physiology, &c. &c.

in 1834, M. Eberle, following out the hints of Berzelius respecting the coagulation of milk by rennet, and the supposed analogous action of an organic principle in the gastric juice, by an extensive series of experiments, fully confirmed by Schwann and Müller, demonstrated that Berzelius' conjecture was perfectly correct. Eberle maintained that all mucus combined with an acid is possessed of the properties of the digestive fluid; but Schwann found that this was not the case with respect to the mucus of the bladder; later observations, however, as we shall see presently, rather tend to establish the correctness of Eberle's view. This was, undoubtedly, a most important step towards a true history of the gastric juice, and soon after Schwann, by shewing that the organic principle to which it owes its efficacy admits of solution in water, and Pappenheim and Wasman by proving that it may be precipitated from its solution, by means of alcohol, reduced it at once to the class of ferments to which in all its properties and chemical characteristics, *Pepsine*, *Chymosine*, or *Gasterase*, as it has been variously called, is perfectly analogous. It must, however, be confessed, that the term *ferment* is not very much better than the heading of what constituted a very large chapter in the older nosologies, viz., *Incertæ sedis*. We know indeed that the ferments consist generally of minute globules, destructible by pretty much the same agencies as organized bodies, and endowed with the power of inducing particular changes, when they are added under favouring conditions to solutions containing organic matter; but Bouchardat has shewn that the vinous ferments may be replaced by portions of brain; whilst Eberle, as we have already said, found that almost every mucus, added to an acid solution, gave to it digestive powers. And the still more interesting discovery was recently made by MM. Bernard and Bareswil(a), that whilst any free acid sufficed to give digestive powers to pepsine—a beautiful providential arrangement, to prevent the acids constantly introduced with our food from interrupting that most important process—the same acids, added in excess to the naturally alkaline saliva and pancreatic juice, deprive these fluids of the property which they previously possessed of acting on starch(b), and endowed them with all the digestive powers of gastric juice; and, on the other hand, that by rendering the gastric juice alkaline, it ceased to dissolve the compounds of proteine, but became a powerful solvent of starch, which it converted into dextrine (gum of starch) and glucose. We see, then, that not merely does the gastric juice contain a free acid, but that acidity is essential to its being what it is, the proper solvent of the albuminous

(a) *Comptes Rendus*, t. xix., p. 12.

(b) M. Bouchardat has found that all acids do not destroy the action of diastase. Formic acid merely impedes it; arsenious acid lessens its fluidifying power only for a very short time; hydrocyanic and acetic acids seem to have little or no influence; and the various modifications of tannic acid, although at first they arrest completely the action of diastase, soon lose their influence upon it. The fixed alkalies, and most of the metallic salts, destroy completely the powers of diastase; ammonia only weakens it, and its carbonate has very little influence at all, whilst creosote and the essential oils are entirely inert.—*Annuaire de Therapeutique*, p. 76 of Supplement.

principles of our food. Now, is this digestion the result of the play of chemical affinities attending an actual change of state, or is it, as has been supposed by most physiologists, but a simple act of solution, analogous to what takes place when sugar is dropped into water? A very simple experiment of M. Bernard's, which has since been most fully corroborated by Bouchardat, Lassaigne, and others, enables us to state, that in digestion something more than mere solution takes place in the stomach. M. Bernard injected into the circulation of dogs and other animals, solutions of albumen, &c., in pure water. In every instance these substances were found to pass off by the urine, in which they were detectable by the usual tests. On the other hand, albumen, fibrine, caseine, &c. digested for a sufficient length of time in gastric juice, and then thrown, diluted with water, into the veins, could not be detected by the most careful examination, in any of the excretions or animal fluids.

We see, then, as the result of all that has gone before, that the acid juice of the stomach is the proper solvent and assimilator of the albuminous portion of our food. We pass now to consider the digestion of the other alimentary matters. The neutral ternary bodies naturally divide themselves into three well-marked categories, the representatives of which are sugar, gum, and starch; and, as we have already adduced many arguments to prove that fecula in the mouth is in mastication partially converted into dextrine and glucose, we shall now proceed to consider the changes which feculent substances undergo in the rest of the alimentary canal.

DIGESTION OF DEXTRINE.—*Experiment.*—A dog, after fasting twenty-four hours, got a meal composed of, dextrine, 100 grammes; lean soup, 300; bread, 100; powdered saffron, 1; prussiate of potass, 1; and was killed three hours after, by dividing the medulla oblongata.

The stomach contained 72 grammes of an acid pap, in which saffron, prussiate of potass, and glucose, were evidently present. The duodenum contained 17 grains of a viscid yellowish fluid, in which prussiate of potass and dextrine were detected. The rest of the small intestine was occupied by similar matters, becoming gradually more dense, everywhere acid, from the presence of lactic acid, and giving decided evidence of the presence of prussiate of potass and glucose. The contents of the large intestine were neutral, but the prussiate of potass and dextrine were still present. The chyle of the thoracic duct was quite free from saffron or prussiate of potass, but contained dextrine. The blood also contained dextrine. The bile, strongly alkaline, gave evident indications of the presence of prussiate of potass and dextrine. The urine was quite free from any trace of either dextrine or glucose.

We see, then, that when dextrine forms part of the nutriment of a dog, it seems to undergo a partial conversion into lactic acid, during its sojourn in the intestinal canal, but the greater part of it is taken up unchanged by the blood vessels and absorbents, and is not afterwards eliminated by any of the emunctories (unless when

given in very large quantity) : the latter fact was also proved by M. Bernard, by injecting glucose and dextrine into the veins. M. Mialhe has found that sugar of milk is likewise absorbed unchanged, and he therefore divides the hydrocarbonates into those which are *immediately* assimilable (glucose, sugar of milk, and dextrine), and those *mediately* assimilable ; the latter class comprising cane and beet-root, sugar, and fecula.

We shall now proceed to examine the phenomena of the

DIGESTION OF CANE AND BEET-ROOT SUGAR.

A. *Sugar in large Quantity and alone.*

Experiment I.—A dog was fed for four days exclusively on cane sugar, during which time he consumed 200 grammes in a solid form, and 100 in solution. He was killed by section of the spinal marrow, three hours after a meal of 100 grammes sugar, and 250 grammes water.

The *stomach* contained 25 grammes of a syrup, with *acid reaction*, and composed of sugar and glucose, lactic acid, chlorides of sodium and ammonium, phosphate of lime, and mucus. The *small intestine*, in its first third, was similarly occupied, but towards its termination in the cæcum, the cane sugar was very small in quantity, whilst the glucose was still apparent; the reaction throughout was acid. The *large intestine* was filled with a more consistent mass, of a darker colour, *neutral*, and giving only faint indications of the presence of glucose. The *chyle*, extremely scanty, contained sugar and glucose, and was distinctly *alkaline*. The *blood* (arterial and venous) contained formic acid and glucose. The *urine* also contained glucose.

From this experiment we learn, that the first and most prominent change which sugar undergoes in the digestive tube is conversion into lactic acid, a reaction which we know to take place under the influence of weak acids, and which M. Fremy has shewn to be invariably produced on placing saccharine solutions in contact with animal membranes. The next most remarkable fact is the formation of glucose, which was not contained in the aliment. The glucose and lactic acid gradually disappear from the canal, and we find them in the thoracic duct, the bile, and the blood, whilst only a small portion of the glucose is eliminated, unchanged, from the latter fluid, by the natural emunctories, the kidneys.

Experiment II.—A dog kept fasting twenty-four hours, got a mixture of sugar, 100 gram.; water, 50; broth, 150; saffron, 1; prussiate of potass, 0.50; and was killed in an hour and a quarter after.

The *stomach* contained 280 gram. of a yellowish green acid syrup; the *duodenum* 25 gram. of a fluid of a similar description; and the rest of the intestinal canal was occupied by matter of the same kind, which assumed greater consistency and a deeper colour towards the termination of the tube. In every part of the alimentary canal the presence of saffron, prussiate of potass, cane sugar, glucose, and free lactic acid, could be distinctly demonstrated. The

chyle was alkaline, and contained a little glucose, but no saffron or prussiate of potass. The *blood* contained glucose. The *bile* contained prussiate of potass and glucose. The *urine*, high-coloured and offensive, was loaded with alkaline phosphates, and contained urea and prussiate of potass, but not a trace of saccharine matter.

Here, in addition to the same play of affinities, we find a very interesting illustration of that class of physical phenomena first examined by Dutrochet, viz., endosmose and exosmose. An animal, fasting for twenty-four hours, takes into his stomach a quantity of a strong syrup, and when examined some time after, the contents of the alimentary canal, so far from being diminished by absorption, are found to be actually increased in amount; and in consequence of this inactivity of the absorbent vessels, no sugar is found in the urine, although some is detected in the chyle, blood, and bile. The explanation of this fact will be afforded by the experiments yet to be detailed.

Experiment III.—Another dog got a breakfast of soup, containing mixed with it 250 gram. of cane sugar. On being sounded three hours after, sugar, but in very minute quantity, was detected in his urine.

Having by these and other experiments demonstrated the effects of the ingestion of large quantities of sugar, M. Bouchardat passed to the second stage of his inquiry.

B. *Sugar administered in small Quantity.*

URINE.—Sugar is never detectible in the urine when a small quantity only has been swallowed.

BLOOD.—*Experiment IV.*—A man labouring under an inflammatory affection took in the morning a quart of water containing a little more than $\frac{3}{4}$ iii. of sugar, and was bled a short time afterwards. Glucose was detected in the blood.

Experiment V.—A healthy woman who insisted on being bled on account of plethora, drank a large cup of coffee containing nearly 80 gram. ($\frac{3}{4}$ xx.) of sugar. Here also the blood contained glucose.

Neither in these, nor in other similar cases, could the presence of formic acid be established.

M. Bouchardat also repeated, with most complete evidence of their correctness, the highly interesting experiments first made by our talented friend, M. Bernard, which have been already laid before the public in M. Bernard's inaugural thesis, and also in the papers read to the Academy by himself and M. Bareswil. In these experiments it was shewn that cane sugar injected into the veins is always eliminated with the urine perfectly unchanged. 2nd, that this substance, if digested for some hours in gastric juice and then injected into the veins, disappears entirely, and gives no trace whatever of its existence in the urine. M. Bouchardat has gone a step farther, and has ascertained that this last proposition has limits, sugar appearing in the urine when the quantity injected exceeds a certain amount; and farther, that when a dilute acid is substituted

for the gastric juice in this experiment, the effect is precisely the same. Hence we see that cane sugar introduced into the blood, which is alkaline, cannot there undergo those changes which are necessary to fit it for the purposes of nutrition, and is eliminated as a foreign body, but that when previously converted into saccharo-glucose by the action of a very dilute acid, it does pass through the necessary transformations, and is retained to be applied to the uses of the organization. That it previously undergoes some farther change whilst circulating in the blood, which in health is always strongly alkaline, seems evident from the following experiments of M. Bouchardat:—

Experiment VI.—100 grammes of glucose in 500 of water was mingled with an equal quantity of a solution of 100 bicarbonate of soda in 1500 water. The mixture was then examined with Biot's polariscope, and was found to deviate the polarized ray 14° to the right. After twelve hours' digestion, at the temperature of the human body, the deviation was only 12° . After the expiration of six days, it was reduced to 8° , and in three months it was 0.

Experiment VII.—A solution of dextrine, of the same strength as the above of glucose, was mingled with an equal quantity of the alkaline fluid used in the previous experiment, and was found to have a power of deviating 32° to the right. It was placed under the same conditions as the solution of glucose had been exposed to, and in twenty-four hours its power of deviation was reduced to 24° . After three months it was still 22° , and dextrine unchanged could be separated from the solution.

Experiment VIII.—A solution of cane sugar, of the same strength, and subjected to the same conditions as the dextrine and glucose in the previous instances, exhibited at first a power of right rotatory deviation of 16° , which, after the expiration of three months, during which period it was repeatedly examined with great care, had only fallen to 15° .

DIGESTION OF FECULA.—We have already considered the changes which a portion of the fecula of our food passes through in the buccal cavity; and we have now to follow the same substance in the modifications which it undergoes in the remainder of the digestive tube. MM. Bouchardat and Sandras, to whom almost alone we are indebted for accurate and well-arranged experiments on this subject (as we are to M. Mialhe for experiments on the saliva), examined the question under two heads,—the digestion of crude fecula, and the digestion of fecula that has been boiled. We shall adopt their very practical classification, and, as before, endeavour to lay before the reader a sketch of the most striking of their experiments and illustrations.

a. Crude Fecula.—Crude fecula digested for some days in cold water, when administered to man, is found in the excrements unchanged.

b. The same takes place in the case of the dog.

c. Artificially introduced into the stomach of a dog, by M.

Blondlot's method, fecula is found intact after twenty-four hours sojourn there.

d. Crude fecula is not acted on by digestion in the gastric juice of a dog out of the body;

e. Nor by water acidulated by hydrochloric acid.

Observations on Animals whose natural Food is crude Fecula.

Experiment I. A rabbit fed plentifully during two months, with raw chopped potatoes, mixed with bran free from all farinaceous particles, was killed three hours after a plentiful repast, by dividing the medulla oblongata. The whole alimentary canal was full of a soft greyish pap. The *stomach* contained a strongly *acid* albuminous fluid. The grains of fecula were intact. In the *small intestine*, the grains of fecula were very little altered near the pylorus, but in proportion as they were distant from it, their form and structure was more and more altered; and amongst the *debris* of starch granules, a quantity of minute globules, not more than $\frac{1}{100}$ of a millimetre in diameter, was apparent. These globules assumed a yellow colour on the application of tincture of iodine. The expressed fluid was strongly *alkaline*, and gave evident indications of the presence of dextrine and of a small quantity of glucose, but the albumen was altogether absent. The *cæcum and large intestine*, in addition to a small amount of unchanged fecula, contained abundance of the minute globules above alluded to, dextrine, traces of glucose, and free lactic acid. The contents of this part of the canal exhibited an acid reaction, which was still more developed after twenty-four hours. The *blood* was distinctly alkaline, and contained lactic acid and traces of glucose. The *bile and urine* were alkaline, but contained no saccharine matter or dextrine. The chyle was in so small quantity that it could not be collected.

Experiment II.—Another rabbit, which had been kept on the above-mentioned diet for ten days, was killed by opening the subclavian artery, and also a branch of the vena-porta, to collect the blood for examination, when the temperature of the large intestine was found to be 104.18°F. The *stomach* was filled with a soft highly acid mass, consisting of unaltered grains of fecula, albumen, a trace of sugar, lactic acid, earthy and alkaline phosphates, and the combination of an alkaline base with several organic acids. The contents of the *small intestine* were strongly alkaline, and were composed of mucus, bile, grains of fecula, some intact, but the greater part more or less fissured and broken down, the unchanged particles being less and less frequent as we approach the cæcum, also the very minute globules before alluded to, dextrine, and faint traces of glucose. The more dark-coloured matter contained in the *cæcum*, though faintly alkaline immediately after death, became very quickly acid. It was found to have the same composition as the contents of the previous part of the digestive tube, with the addition of lactic acid. The *blood* contained dextrine and glucose, which was in greater quantity in the vena porta than in the arterial

system: the serum obtained from the latter source was also more dense and the crassimentum thrice as voluminous as in the blood of the liver. The *chyle* could not be collected. The *bile* and *urine* were alkaline: the latter presented no trace of dextrine and glucose, but the former contained both.

Experiment III.—A rabbit two-thirds grown was fed for fifteen days on barley and distilled water; it was then killed by opening the carotid artery, the blood in which was found to be of the temperature of 103.1°F.

In the *stomach*, amid the *debris* of barley, grains of fecula, quite unaltered, were observable under the microscope; in the pulpy mass, which presented a strong acid reaction, glucose, dextrine, albumen, lactic acid, and salts were also detected. The *small intestine* throughout its whole length was highly alkaline, and its contents consisted of grains of fecula, becoming more and more altered towards the cæcum, with minute globules, traces of glucose and dextrine. The *cæcum* contained a pulpy mass with a strong acid reaction which was found to be composed of the ligneous remnants of barley, a few rare particles of unaltered fecula, numerous minute globules, assuming a yellow colour when exposed to iodine, glucose, dextrine, and free lactic acid. The *rectum* did not present the least trace of fecula, but the microscope detected in it silex, minute globules, and the cortical envelope of barley. The *blood* and *bile* were distinctly alkaline, and contained traces of dextrine and glucose. The *chyle* was too small in quantity to be examined. The *urine*, contrary to the previous cases, was acid, and altogether free from dextrine and glucose.

Experiment IV.—A healthy but very lean fowl was fed during fifteen days on barley exclusively. On being killed, by opening the carotid, the temperature of the large intestine was found to be 109.4°. The *crop* was filled with grain, not altered in form, but softened by a neutral liquid, presenting traces of albumen, but no sugar or dextrine. The *gizzard* contained the *debris* of the cortical envelope of barley, particles of silex, grains of barley, some completely unchanged, more broken down and altered; also minute globules, which, under the action of iodine, assumed a yellow colour. The fluid with which these matters were mixed up was strongly acid, and presented traces of glucose, dextrine, albumen, and lactic acid. The *small intestine* in the first part of its course was faintly acid, and its contents were similar to those of the gizzard; but towards its termination it was strongly alkaline. The glucose and dextrine had almost completely disappeared; whilst the minute globules had become extremely numerous. Solution had evidently gone on with great activity, affecting even the ligneous particles of the alimentary mass, and a yellow colour was developed by the tincture of iodine; the particles that became blue being extremely few in number. The *cæcum* was throughout acid, especially at its inferior extremity; it contained no fecula, but the minute globules were numerous, and there were traces of glucose, dextrine, and lactic acid. The commencement of the

rectum was distinctly alkaline, but at the anus the reaction was acid; the excrementitious matters contained the small globules, but were completely destitute of fecula, dextrine, and glucose. The blood gave traces of glucose and dextrine, but contained no formic acid.

M. Bouchardat varied several of the conditions of the experiment in the course of his investigations, but the results were always nearly identical, and it is unnecessary to recapitulate them.

B. Digestion of Fecula which has been cooked.—Not only the animals essentially herbivorous or graminivorous digest cooked fecula, but even the carnivora digest it with facility. Some grains of starch which have escaped the action of the alimentary canal are observable in the excrements of the carnivora, which is not the case with animals that naturally live exclusively upon vegetables. Dogs and other animals fed solely on bread, or bread and soup, and killed soon after a full repast, are found to exhibit, throughout the whole length of the alimentary canal, evident indications of the presence of lactic acid free or combined with minute traces of dextrine and glucose; the two latter substances are also manifestly present in the blood and bile, but never in the urine.

From all this, we may very fairly conclude that—

1. In the stomach in which an acid reaction is constantly present during the process of digestion, feculent substances undergo very little, if any, change.

2. Disintegration of the starch granules, and their conversion into sugar and dextrine, begins in the duodenum simultaneously with the development of an alkaline reaction.

3. The transformation into lactic acid of some of the sugar and dextrine thus formed, and the absorption of the rest of these products of digestion, takes place precisely as was found to occur, where sugar in *small* quantities had been administered.

4. The conversion of fecula into dextrine and glucose in the intestines of animals, and its consequent disappearance from the excrement, is more or less perfect according as the starch granules have been previously more or less perfectly ruptured, or deprived of their envelope (by mastication, attrition, or boiling), and according as amylaceous food forms a greater or less proportion of the natural nutriment of the animal.

5. Since both extremities of the alimentary canal beneath the diaphragm are, during digestion, decidedly acid, whilst the intermediate portion, the mucous membrane of which is precisely identical in its structure, exhibits an opposite or alkaline reaction; and since this alkalinity begins to appear, and is most intensely marked, near the point where the biliary and pancreatic ducts empty their contents into the duodenum, diminishing gradually as we proceed towards the cæcum, we have good reason to believe that the change of starch into sugar and dextrine, which we find to take place *pari*

passu with an alkaline reaction, is due either to the pancreatic or biliary fluid, or to both combined.

MM. Bouchardat and Sandras were next led to put to themselves the inquiry, what is the physiological use or function performed by the pancreatic and biliary fluids? And some of the experiments which they and others have instituted^(a) in order to decide, if possible, these much-disputed points we shall now proceed to lay before the reader as briefly as perspicuity will permit.

ON THE USES OF THE PANCREAS.—The discordance of authors as to the qualities and uses of the pancreatic juice is not less than we find to be the case on almost every other subject connected with digestion. The first who attempted to examine it was De la Boë (F. Sylvius) about the middle of the sixteenth century. Living at a period when the doctrine of effervescence was made to play as important a part in explaining the phenomena of vitality as fermentation does at present amongst the German school of physiologists, he sought everywhere for an acid capable of neutralizing the alkali of the bile and in the pancreatic juice conceived, that he had discovered what would be adequate to produce that effervescence on which he relied as the *primum mobile* in some form or other of animal organisms. This theory of Sylvius was put to the test of experiment by his pupil De Graaf, who, by dissecting animals alive, was able to collect a considerable amount of pancreatic juice: its qualities were found to vary very much, but on the whole his experience, as well as that of Schuyl was regarded as favourable to the views of his master. Tiedemann and Gmelin also found it acid in the normal state, but conceived that it was rendered alkaline by the sufferings of the animal. On the other hand Wepfer, Pichlin, and Brunner, described it as a neutral liquid with a saltish taste, (contrary to the other observers, who found it turbid, and of a whitish colour) whilst Mayer, Magendie, Leuret, and Lassaigne, &c. found it invariably alkaline. The opinions as to the uses of the pancreatic juice were still more various and discordant. Haller^(b) regarded it as intended to temper the acidity of the bile, and prevent the latter fluid from exciting too powerfully the peristaltic motions. Werner^(c), Eberle, and Krimer, entertained a notion not very dissimilar. Berzelius, Burdach, Magendie, and Simon, seem to have formed no decided opinion on the subject; and Tiedemann and Gmelin, who investigated the nature and properties of the pancreatic juice more than any physiologists before them, assert that this fluid contains from 8.7 to 3.7 per cent. of solid residue, consisting of osmazome, a substance changed to red by chlorine, another substance analogous to caseine, albumen, salivary matter, acetate of soda, chloride of sodium, a little phosphate and sulphate of lime,

(a) For M. Bouchardat's account of these experiments see the *Supplément à l'Annuaire de Thérapeutique pour 1846*, pp. 139, 157; and *Comptes Rendus*, t. xvii. and xxi.

(b) *Elem. Physiol.*, t. iv. p. 451. (c) *Scherer Journal*, t. vi. p. 33.

and carbonate and phosphate of lime; they therefore look on it as essentially different from saliva, to which it was thought very similar by Galen and the ancients. Later researches on this subject by Leuret and Lassaigne(*a*), rather tend to establish the correctness of the ancient idea. These last experimenters found that the pancreatic juice, when evaporated, never left more than $\frac{1}{100}$ per cent. of solid residue, which on analysis was found to consist of a principle soluble in alcohol, another soluble in water, traces of albumen, mucus, carbonate of soda, chloride of sodium, chloride of potassium, and phosphate of lime; and from the results of their observations they regard the salivary and pancreatic fluids as very closely analogous.

MM. Bouchardat and Sandras, having selected a large and fleshy domestic fowl, killed it by dividing the spinal marrow, and immediately proceeded to examine its viscera:

"The pancreas is in these animals, as is well known, extremely large, and pours the pancreatic juice into the small intestine through several canals. We dissected carefully the principal, which opens close to the hepatic duct. The pancreatic canal was divided, and, by means of gentle pressure, a few drops of pancreatic juice were, with difficulty, made to flow from its divided extremity. This was all of the fluid that could be obtained, but it sufficed to establish the following characters. The pancreatic juice of the common fowl is transparent and viscous; it restores to blue litmus paper that has been reddened by an acid. When mixed even in extremely minute proportions, with starch jelly, the latter is liquified and converted into dextrine and glucose. If a minute quantity of it be mixed with a little water, and a few grains of starch be then added, and the temperature gradually raised, taking care that it never reaches 70° (189. 5° F) the grains of fecula will be disaggregated, and the action is of such a nature that the mixture never assumes the form of dough. If pure alcohol be poured on this pancreatic juice, a deposit forms, which, on being separated by decantation, and again dissolved in water, acts on starch exactly as pancreatic juice. This is diastase, the presence of which in the small intestine of granivorous birds we have fully proved"(*b*).

The very same results were obtained by experimenting upon geese, but they proceed to remark that,

"The very small amount of pancreatic juice that we were able to obtain in this way would have very much limited our experiments, had we not hit on a very simple method of procuring much larger quantities of the active principle secreted by this gland. For this purpose we took the pancreas of a goose, and after having carefully dissected away from it the principal blood-vessels, and removed the blood which might soil the organ, we found that the liquid which it contained restored the blue colour of reddened litmus.

(*a*) *Comptes Rendus*, t. xx.

(*b*) *Supplément à l'Annuaire de Thérapeutique*, pour 1846, p. 147.

"A few fragments of this pancreas were ultimately mixed with jelly of starch, still warm, but very stiff; in a few minutes the jelly was converted into a liquid without viscosity.

"A similar experiment was made with the tissues of various organs, and in different animals. The following were the results: With the tissue of the liver there was no trace of liquefaction observable; with the tongue still impregnated with saliva and mucus the action was barely appreciable; and with the sublingual glands it was still feebler, though manifest.

"If the pancreas be soaked in its weight of water, and then pressed, a liquid is obtained which has considerable solvent powers. By repeated precipitation by alcohol and solution in water, as in the operation for preparing diastase from barley, a flocculent precipitate is obtained, which, when dried rapidly, is possessed of very active solvent powers."

The attempts of MM. Bouchardat and Sandras to obtain pancreatic juice in greater quantity from the larger graminivora were not very successful, owing to the pancreatic duct being either divided into several very small branches, or being buried in a mass of fat, which rendered it very difficult to be certain as to the nature of the fluid collected. They were also unable to collect from dogs the quantities spoken of by De Graaf and Tiedemann and Gmelin, but this part of their inquiry they are still engaged in carrying out. In all cases, however, they were able to demonstrate the solvent powers of the fluid obtained, and they found that the pancreas of a man frequently possesses the power of converting starch into dextrine and glucose, even thirty hours after death.

We have already said that the analogy of the pancreas to the salivary glands seems to have been apparent to inquirers into the philosophy of anatomy from the very earliest times, as it was dwelt on by both Aristotle and Galen. This relation is further confirmed both by comparative and by pathological anatomy. In the animal kingdom the development of the pancreas is found to follow closely the development of the salivary glands, being absent when the latter are absent, both organs enlarging and diminishing together; and even the exceptions to this rule rather furnish evidence of the correctness of the more general law referring to the uses of the organ, than tend in the least degree to invalidate its general accuracy. Thus, the hedgehog, the mole, the bear, &c., have a pancreas much larger than the other carnivora; but we know that these animals eat willingly various kinds of vegetable food, for the proper assimilation of which the increased size of this gland seems to be a natural provision. Again, birds, whose salivary glands are small and of little use, from their not masticating their food, have the pancreas large and active, in order to enable them to effect that quick digestion, and rejection of effete materials, which is so necessary to an animal that has to support the weight of its body in the air. "Cependant," says Cuvier, "ce plus grand développement est moins sensible dans les oiseaux de proie. C'est surtout dans ceux qui

se nourrissent de substances végétales particulièrement dans les granivores qu'on l'observe (a).” It is in the pigeon, probably the most granivorous of all birds, that we find the pancreas largest in proportion to the size of the animal. The very great number of pancreatic ducts, and the variety of points at which they open, is also an argument in favour of the very important purposes to which the fluid secreted by this gland is applied in the case of the granivorous birds. The pancreas is absent from the whole class of fishes, with but one or two exceptions. Weber found it in the carp, which is what we should expect, since we know that the animal lives chiefly on vegetable food; but it is not so easy to explain the presence of a conglobate gland of the kind in some of the chondropterygious fishes. Our knowledge of nature is, however, yet too imperfect to enable us to form more than very general notions as to the functions of organs in the lower classes of animals, and there is no general rule that has yet been enunciated to which numerous exceptions may not be adduced.

The diseases of the pancreas have been but little studied. Few cases have been recognised during life, and we know almost as little of their symptomatology as of their treatment; still our friend, Dr. Battersby, whose paper on “Scirrhus of the Pancreas(b)” contains almost all that we know as to the pathology of that gland, after a very careful examination of all the recorded cases, arrives at the conclusion that “the close relations and intimate sympathy existing between the abdominal and buccal salivary glands can scarcely be questioned,” and are most valuable aids to diagnosis. It appears to us, therefore, that these facts, taken in connexion with those adduced in favour of the peculiar function of the salivary glands, establish a very strong probability of the correctness of the views of those who regard the salivary and pancreatic fluids as the proper solvents of fecula.

USE OF THE BILE IN DIGESTION.—Opinions upon this subject are fully as various and as discordant as on any point connected with physiology. Whilst some view the liver as of the most vital importance to digestion or depuration, others have regarded it, as the spleen and pancreas have been by some, as of little or no use in the economy—a notion strangely at variance with those views of design which every reflecting mind must see impressed on all the arrangements of Providence. We shall not trouble ourselves much, however, with opinions, but shall turn at once to the facts which MM. Bouchardat and Sandras(c) above all others, have collected and arranged to our hand. Haller found that bile forms an emulsion with fatty matter, which thereby becomes miscible with water, and he therefore believed that its use in the body is to render fatty matter capable of being absorbed by the lacteals. That bile has really this effect, out of the body, has been confirmed by Berzelius, and cannot be doubted, as the fact is easily demonstrable. Now, all observers have agreed in

(a) Cuvier *Anatomie Comparée*, t. iv. p. 593.

(b) See Dublin Med. and Surg. Journal, vol. xxv., p. 240. Old Series.

(c) *Supplément à l'Annuaire pour 1846*.

stating that, during the digestion, the fat is found floating like oil on the surface of the contents of the stomach, but that no such appearance is to be met with in the intestines, where milky streaks alone are observable; and again, the researches of Bouchardat and Sandras have fully proved that bile has no action whatever, either on the proteine series (albumen, fibrine, gluten, gelatine, &c.), nor on the neutral ternary bodies (starch, sugar, gum, &c.); they have also confirmed the statement of Brodie, Tiedemann, and Gmelin, that in animals which have had the flow of bile into the intestines interrupted by a ligature, the lacteals contain only a clear fluid in very small quantity, whilst emaciation is found to have progressed rapidly. From these facts the conclusion seems inevitable, that one at least of the uses of the bile is to form an emulsion with the oleaginous matter of the food, thereby rendering the fat miscible with water, and more capable of being absorbed by the lacteals(*a*). That the liver serves more purposes than that of merely secreting a fluid to form an emulsion with the bile, is evident from the experiments detailed in a previous part of this paper. Sugar, dextrine, prussiate of potass, &c., when forming part of the ingesta, are again found in the biliary fluid; and every one recollects the experiments of Orfila and other toxicologists, by which it was demonstrated that arsenic and various mineral poisons, by whatever mode introduced into the circulation, are found in notable quantity in the liver; whilst the coma following on jaundice from obstruction of a gall-duct, by whatever cause, the well-known and often dwelt-on relation of alternation between the magnitude of the lungs and liver, and many other facts, all tend to establish on the firmest basis that something noxious is eliminated in the bile. MM. Bouchardat and Sandras regard the liver as the janitor or guardian of the entrance of the general circulation. The matters absorbed from the stomach are conveyed to the spleen, and thence by the splenic(*b*) and portal veins to the liver, where the noxious and

(*a*) It will be seen that we assume that the principal function of the lacteals is to absorb fat. Bouchardat and Sandras never could trace the lacteals to the stomach, and they found that the various fatty bodies introduced with the food could be again separated from the chyle, which is constantly alkaline, no matter what may be the reaction of the portion of the intestinal canal from which it had been separated. Brodie, and Tiedemann and Gmelin, also shewed that when an animal is deprived of food containing adipose matter, the chyle is very small in quantity, and perfectly limpid, whilst the same effect is produced by tying the ductus choledochus. We have already seen that sugar and dextrine may enter, though in very minute quantity, the thoracic duct. Animals in which the thoracic duct has been tied, may live, but they emaciate rapidly. On the functions of the lacteals, see an excellent paper by Dr. Aldridge in the former series of this Journal, vol. xxv. p. 87.

(*b*) MM. Bouchardat and Sandras, in detailing their experiments, seem to forget that the splenic veins assist in forming the porta. They speak of the matters carried to the spleen by the vasa brevia as being thrown into the greater circulation. Now, independently of the splenic vein joining the vena porta, the spleen, as Cuvier most justly remarks, is proved, both by comparative anatomy and by the observations and experiments of physiologists, to be but an appendage of the liver, and, most probably, nothing more than a reservoir for blood during digestion. MM. Bouchardat and San-

unassimilable substances are returned to the intestine in the bile. Sugar also, and other articles of diet, not immediately assimilable, if taken up in larger quantities than can at once be made use of in the blood, have the excess of what is required by the system thrown back in like manner. From the intestines they are again absorbed, and go through the same course, thus allowing time for the requisite changes to be effected in the blood. But if the quantity of these matters passing through the liver exceed a certain amount, the liver is unable to throw off the whole, and thus substances enter the blood before they are fit to be applied to the uses of the system, and are consequently excreted with the urine. This theory is at least in accordance with the facts already detailed in giving a sketch of Bouchardat's and Sandras' experiments, on the digestion of sugar and fecula, as well as with what modern medical jurists know to be the case in reference to the finding of mineral poisons in the dead body; and many other pathological and anatomical illustrations must suggest themselves to the reader, but as we must allude to the subject again, hereafter, we shall say nothing further at present.

We have made but little allusion to the chemical history of the bile, for the very simple reason, that we believe analysis of the biliary fluid has as yet thrown no light on the subject. Although bile has been carefully examined by Berzelius, Braconnot, Bizio, Bostock, Chevreul, Chevallier, Demarcay, Fourcroy, Frommherz, Gmelin, Gugert, Henry, Kuhn, Kemp, Lychnell, Lassaigne, Liebig, Pleischl, Prout, Thenard, Theyer, Schlosser, and many others, and each has added his mite in the form of a proximate principle, or something of the kind, to increase the complexity of this puzzling fluid, none of them found in it any sulphur; yet it was recently shewn by Redtenbacher, that taurine (a proximate principle obtained by Gmelin from bile, by boiling it in hydrochloric acid) contains no less than *thirty per cent. of sulphur*. This discovery completely overthrows most of the beautiful and ingenious formulæ which we find in Liebig's book, and proves how much has yet to be done before analytic chemistry can pretend to form any exclusive theory of the vital processes.

Illustrations from comparative Anatomy.—The importance of the functions, whatever they are, performed by the liver, is very evident from the size and connexions of the organ in all the vertebrata, and in many of the invertebrate animals, as the mollusca, in which it is enormously developed. As to its actual use, however, we can glean but very general information from comparative anatomy; what we do learn from this science, however, is confirmatory of the views advanced above. In carnivorous animals, in general, the stomach is small, and the intestinal canal short, whilst the liver is proportionally large. The size of the liver is also inversely as the development of the lungs, and the activity of respiration; but other particulars

dras' oversight on this point does not, however, in the least invalidate their reasoning. It is curious that here, as well as in regard to the pancreas, they but return to the opinions of Galen. See *Galen et Hippocratis Opera*, t. v. p. 188, Edit. 1679. The very name *vena porta* indicates something of the kind.

about this organ, its form and connexions, the course and mode of opening of its ducts, and the presence or absence of a gall bladder, seem incapable at present of enabling us to found any general proposition upon them. Cuvier, indeed, believed that the biliary duct, opening near the pylorus, caused the animal to be voracious; but in the hare and the springbock the embouchure of the bile duct is closer to the pylorus than it is in the hog, and in birds exceptions of the kind are exceedingly numerous.

Pathology only informs us that the presence of the bile in the blood often acts as a poison; but jaundice very frequently continues for a great length of time without any bad symptom making its appearance.

SUMMARY.

From the foregoing sketch of what we know of the changes effected in the process of digestion in the higher mammalia, the following appears to be the most correct theory of the process.

In the mouth, albuminous matters are merely divided, so as to facilitate deglutition, and to prepare them for solution in the gastric juice, by exposing a greater surface to the action of that solvent. Fatty matters combine and form an emulsion with a little of the alkali of the saliva, but the amount of change of this kind is quite unimportant. Sugar undergoes no change, being merely dissolved in the water of the saliva. Amylaceous substances are broken up and triturated between the broad crowns of the molars, in order to promote their thorough admixture with the saliva, and to rupture the cortical envelope of the starch grains: the latter effect being much facilitated by the temperature under which mastication is carried on. The saliva, meantime, being poured out in profusion, in consequence of the irritation to which the extremities of the salivary ducts are subjected by the food, by means of a principle analogous to diastase, and under the influence of its own alkalinity, acts chemically on the fecula, converting it into dextrine and glucose, and thereby rendering it soluble. Only part of the starch, however, undergoes this change in the mouth; the rest, mingled with the alimentary bolus, is, after a certain time, collected into a ball, and by the combined action of the tongue and cheeks, is thrown back into the pharynx, when the excito-motor action of the constrictors quickly carries it to the stomach, without its undergoing any farther change.

In the stomach, the presence of the food causes the most intense turgidity of the mucous membrane to take place instantly, during which the acids and certain salts of the blood, together with a solution of a peculiar organic substance, are thrown out by exhibition from the papillæ uncovered by epithelium. By this fluid the albuminous elements of our food are dissolved, and their chemical characters are somewhat changed. Saccharine matters are also, by contact with the membrane, and under the influence of the acids of the stomach, in part converted into lactic acid, and both are absorbed by the veins of the stomach. The fat set free by the solution of the areolar tissue, in which it was confined, and liquified by the heat, is, by the muscular action of the stomach, conveyed along with the other unchanged alimentary matters into the duodenum.

In the small intestine the bile forms an emulsion with the fluid fat, which emulsion, being absorbed by the lacteals, gives to those vessels their characteristic colour. The pancreatic juice reacts on the starch, and converts it into dextrine and glucose: a portion of these are then farther transformed, by contact with the mucous membrane, into lactic acid, and the branches of the mesenteric veins, ramifying on the intestine, keep absorbing the lactic acid, dextrine, glucose, cane sugar, and the other soluble matters presented to them.

Large Intestines.—In the rest of the alimentary canal the same process of absorption goes on, but the only chemical change which is there effected is the formation of lactic acid from the cane and diabetic sugar which had passed unchanged from the upper part of the tube. The matters taken up by the veins of the stomach and intestines, being conveyed by the vena porta to the liver, the superfluous glucose, and other ingredients, are again returned to the intestines in the bile, to be afresh absorbed, and conveyed to the liver, to go through the same changes, thus giving time for those transformations to be effected in the blood which are necessary to complete assimilation. When more of substances not prepared for entering into the blood is carried to the liver, than that organ is capable of throwing off, the kidneys take on a part of its action, and the glucose or albumen, that has got furtively into the circulation, is excreted along with the urine.

The above views suggest the following pretty analogies(a): *In plants*, starch can only minister to nutrition by being rendered soluble by a ferment (diastase), which is secreted, not in the radicles nor in the shoots, but just where theory tells us it ought to be, close to the germ. In like manner, *in animals* starch cannot be assimilated until it has been similarly acted on, and diastase is found in the mouth and the intestines.

Vegetables cannot appropriate to their support the neutral hydrocarbons until the alkali contained in the soil has transformed these substances into others which are soluble, and chiefly into ulmine. *Animals* also can only apply to the uses of their organism these same substances after they have been acted on by the alkalies of the vital fluid, and ulmine is one of the products of the reaction.

In vegetables the vital fluid, the sap, is always neutral or acid; in healthy *animals* the blood is always alkaline.

In healthy *vegetables* the sap contains glucose; in healthy *animals* the blood contains no glucose.

In some *diseased animals* (glucosuria), however, the blood is both acid and contains glucose, and in some *diseased plants*(b) the sap becomes alkaline, and contains no glucose.

(a) Chiefly from M. Mialhe, but with him not altogether original, the same analogy of some urinary diseases to the normal state in *vegetables* having been hinted at by Cuvier in his Report on the progress of Science, 1810.

(b) The curious experiments of M. E. Fremy are here referred to. If plants be regularly watered with a weak alkaline solution, the glucose is found to disappear entirely from the sap, which then presents an alkaline reaction. See *Comptes Rendus de l'Académie des Sciences*. Ser. 1844. p. 784.

We must now proceed to the application of these facts to one of the most puzzling, as well as the most unmanageable, of all diseases,

GLUCOSURIA, OR DIABETES MELLITUS.

M. Bouchardat conceives, that an enormous appetite, an insatiable thirst, an extreme desire for saccharine and amylaceous aliment, the suppression of perspiration, and the passing of a large quantity of urine containing glucose, are among the most established phenomena of the disease we are considering. His own researches lead him to believe that, first, the thirst is proportionate to the quantity of saccharine or amylaceous food taken; and secondly, that the proportion of glucose contained in the urine bears a constant relation to the saccharine or feculent matter contained in the food. These relations we find very distinctly exhibited in severe cases, but they are less evident where feculent substances form but a small proportion of the food; and when a patient has for some time been kept from using substances capable of forming sugar, the system seems to lose the habit of converting starch into glucose, and the urine may remain normal for some time after amylaceous diet is resumed, but matters eventually go on as before, and then the rule will be found to apply.

It seems rational to suppose, *a priori*, that the elements of sugar being denied to the patient, no sugar can be found in the urine. M. Bouchardat has endeavoured to ascertain whether sugar can be formed from proteinaceous substances; but all his experiments have been contradictory to the idea, that at the temperature of the human body, such a transformation can be effected; and the instances of patients kept exclusively on animal food continuing to pass glucose in their urine, he prefers explaining by the supposition, that the vigilance of the physician had been evaded, and bread, or something of the kind, really made use of.

The blood in glucosuria has been said to contain glucose by Rollo, Ambrosiani, Maitland, Mac Gregor, Guibourt, Christison, and Kane; whilst that it ever does so has been most roundly denied by Nicholas and Gueudeville, Vauquelin and Segalas, Soubeiran and Henry, D'Arcet, Wollaston, Marcet, and many others. M. Bouchardat's experiments enable us to reconcile these glaring contradictions. He finds that the presence or absence of glucose depends very much *on the time at which venesection has been performed*. The blood drawn in the morning contains little or none, all the glucose formed during the digestion of the last meal having been eliminated in the urine during the night. There is another very fruitful source of error in the pathology of the blood. If the blood drawn be not examined immediately, the glucose it contains is rapidly converted into lactic acid, and the whole of the sugar may have disappeared from this cause, a fact which was amply verified by many experiments.

Alkalinity of the Blood.—M. Mialhe maintains that the alkalinity of the blood is diminished, or even altogether disappears, in glucosuria. But M. Bouchardat is of a contrary opinion, although he admits that it rapidly loses its alkalinity after being drawn from a vein.

Composition of the Blood.—Nicholas and Gueudeville, Soubeiran and Henry, jun., found the blood of diabetic patients somewhat altered in diabetes; and their observations were confirmed by those of Le Canu, and the former researches of Bouchardat; the latter observations, however, of the last-mentioned chemist, lead him to doubt the constancy of this change.

Contents of the Stomach in Glucosuria.—M. Bouchardat availing himself of some cases in which it had been thought judicious to administer an emetic of ipecacuanha, before commencing the regular treatment, has been enabled to study the nature of the contents of the stomach in diabetes mellitus. The fluid thus procured did not in any instance convert into glucose any of the compounds of proteine, whilst it acted powerfully on starch, even in the crude state, and by a very simple process a substance was obtained from it, in every respect identical with diastase—a principle which neither M. Bouchardat nor M. Blondlot, in numerous experiments made to determine the point, have in any instance found to form a constituent of the gastric juice of a healthy animal. In this last assertion, however, M. Bouchardat seems to be in error, since it was found by Bernard and Bareswil(a) that gastric juice, when rendered alkaline by a little carbonate of soda, loses the property of dissolving flesh, but becomes as active as either saliva or pancreatic juice in the conversion of starch into glucose; whilst, on the other hand, the pancreatic and salivary fluids undergo a similar conversion into gastric juice by the addition of a little acid.

Patients affected with glucosuria either die gradually of exhaustion, tubercles being developed previous to the fatal termination, or they are suddenly cut off without any symptom leading to an apprehension of such an issue. In cases arranged under the first category, no trace of sugar can be found in any of the animal fluids, or in any part of the body, after death. The same remarkable fact is observable in the other class, where the patients have been struck down suddenly. We have only room for one illustration. A young man from the country, about twenty years of age, and of very limited intelligence, had been affected with glucosuria for a very long time, and was notorious in his native place for the voracity with which he devoured enormous quantities of flesh, raw vegetables stolen from the fields and swallowed undressed, &c., &c. During the first twenty-four hours that he was in the Hotel Dieu, he swallowed a pound and three-quarters of bread, more than ten ounces of boiled beef, an equal quantity of potatoes, nearly a pint of wine, a pint and a third of broth, and nearly nine pints of tisane. During the same period he passed eleven pints of urine, containing 22954 grains of glucose, being the largest proportion ever met with by M. Bouchardat, in his very extensive researches on this subject. The following day the patient stole some bread, and, going into a cold damp place, to get an opportunity of eating it, he caught cold, and died, in eight hours, of pleuropneumonia. The stomach, of enormous size, was found full of an

(a) *Comptes Rendus*, t. xxi. p. 88.

acid pap, in which portions of bread were visible ; but the most careful examination could not detect in it any trace of glucose, nor could that substance be discovered in the blood or the other fluids. M. Bouchardat infers from such cases that since the pouring out of the gastric juice has been found to depend on the state of health of the individual, they afford additional proof that the formation of glucose in diabetes is referrible chiefly or solely to the diastase contained in the gastric juice.

Of the Nature of Diabetes.—The last article of our summary of digestion really contains M. Bouchardat's views of the nature of glucosuria. Diastase is secreted by the stomach abnormally, or, at least, in abnormal quantity ; this reacts on the starch of the food, converting it into glucose ; and a quantity of water equal to eight times the weight of the starch being necessary for the purpose of effecting this chemical change, this explains the insatiable thirst (so far as two facts without apparent connexion can explain the reason of their conjuncture). The glucose thus formed, being absorbed by the intestinal and gastric veins, passes to the liver, but is in too large quantity to be all thrown off in the bile ; it, therefore, enters the circulation, and is got rid of by the kidneys. M. Bouchardat supposes that the lower temperature of the bodies of glucosuric patients, resulting probably from the large quantities of cold water drunk, and the loss of caloric in converting the starch into sugar, may also prevent the destruction of glucose from being effected in the blood. He looks on the sudden suppression of perspiration as one of the most frequent causes of the affection, and seems evidently disposed to regard a too amylaceous diet as another predisposing cause ; whilst he suggests to pathologists to inquire whether affections of the pancreas have any connexion with it.

The illustrative experiments are, many of them, very interesting ; but we have not room for them. Attempts were made to remove the pancreas, but the animals always died of the operation. In one case glucose appeared in the urine after ligature of the pancreatic duct, but on dissection, it was found that communication of the pancreas with the intestine had been re-established by ulceration. In the urine of animals fed exclusively on malt (which we know abounds in diastase), glucose occasionally, but by no means invariably, was found in very minute quantity in the urine. Great thirst or a ravenous appetite was, however, in no case thus produced. Even fully admitting the correctness of the theory, this is what should be expected, since it is quite impossible, though the fact is denied by homœopaths, to produce, artificially, all the conditions to be met with in disease. We have heard it stated that Dr. Golding Bird had found glucose in the urine of many perfectly healthy persons in London ; and that saccharine urine is endemic in particular parts of the country. This circumstance, if our information be correct, is deserving of careful examination. We know that in London, at least, malt liquors are used more freely than probably in any other part of the world ; and if any connexion between such habits and the production of glucose in the

urine could be satisfactorily made out, it would go farther to establish the theory of M. Boucardat, than all his ingenious, though cruel, experiments on animals.

In the previous part of this paper we have made no allusion to what takes place after the fluid aliment is mixed with the circulating fluid, because, as yet, we have no means of following it thither, and all that has been advanced on the subject is mere theory and guess work. Liebig, indeed, has made a most able attempt to cut this Gordian knot, but it has proved too much even for his bold genius. Though many an imbelles telum has been hurled at his system, there can be no doubt that on a great number of points it is discordant with the facts which pathology, physiology, and experience bring to our knowledge, and its very foundations have been sapped by the discovery by Redtenbacher of sulphur in taurine; by Booth and Boyé that uric acid is not changed into hippuric acid by the ingestion of benzoic acid; by Mialhe that glucose is not eager to combine with oxygen, but that, by the action of an alkali on it, it acquires the property of reducing certain metallic oxides, even when the access of air, or of any source of oxygen, is most carefully excluded^(a), and by very many of the facts laid before the reader in the commencement of this paper. It really requires as much philosophy to believe that the many pounds of potatoes swallowed by the countryman in the course of a day, find their full nutritive equivalent in the thimble-full of nitrogenized elements which forms but an infinitesimal part of his apparent food, as it does to adopt and *follow out* the doctrines of Bishop Berkeley. Knowing, as we do, that both water, and carbonic acid, and urea, and many other salts, are formed in the body, and having a still longer list of real chemical compounds which are decomposed in the system, it seems very much in contradiction to those notions of design and uniformity which we learn from all that we see around us, to suppose that of the mere mechanical mixture of oxygen and nitrogen, which it is the business of our lives to introduce into our lungs, the minor element alone is of any use; and that the immense quantities of starch swallowed in our food, although an elaborate glandular apparatus and complex organs are provided to render it capable of absorption, after which we can trace its progress into the blood itself, is, notwithstanding, intended merely to be burned off to supply us with heat. If carbon and hydrogen, and the organic acids, not to speak of the great acidifier itself, form fresh compounds in the body, we have not yet seen any valid argument to shew why the same privilege may not be extended, as believed by Dr. Prout, to nitrogen; the latter view is supported by many powerful analogies. We certainly do believe that starch contributes to nutrition; and the views of digestion that we have been employed in illustrating strongly support that opinion. Animals, indeed, have been found to die when fed exclusively upon starch; but it was found equally impossible to prolong life on a diet of fibrine. Nay, it has been shewn by M. Magendie's experiments,

(a) *Gazette Medicale*, No. xviii. p. 344; and *Comptes Rendus de l'Académie des Sciences*.

that even any artificial combination of gluten, albumen, fibrine, gelatine, &c., united in the proportions to form flesh or any other natural substance, was equally incapable of ministering to nutrition when used exclusively. Chemists in proposing their theories but too often forget that the animal body is something more than a moving laboratory; many of the phenomena of life may indeed be generalized by assimilating them to chemical processes, but there are still too many gaps to be filled up, to permit us to regard them as identical. Thus, although we feel convinced that the views of digestion developed in this paper are in general correct, so far as they go, yet we are very far from regarding the processes they are meant to explain as purely chemical, nor do we think that any ulterior investigations will make us to understand why it is that we can digest some substances (as, for instance, fruit) at peculiar times of the day, and not at others; why fish, of which an individual is very fond, and which he digests perfectly well, will yet bring out over his whole body an eruption of urticaria in ten or fifteen minutes after being swallowed; why a patient may be cured of dyspepsia by a diet of turnips, which we knew to be the case in one instance; why the smallest portion of albumen, carefully concealed, may give rise to the most alarming sickness, as occurred in a patient of Dr. Graves', &c. Again, in diabetes insipidus, what chemical theory will explain the facts? In hysteria, what chemical processes require the large amount of water which in such cases we often see passed? And again, in diabetes insipidus, what explanation does chemistry afford? A patient of Dr. Benson's is at present passing urine of the specific gravity of 1.002, and without a trace of glucose or albumen, yet eighteen pints are voided daily. Need we refer to albuminuria, &c.? In fact, the cases beyond the reach of a chemical solution are far more numerous than those to which such explanation applies. Different animals seem fitted to digest very different substances; we also find taste and mental impression have a powerful influence on the digestive process, and we very much doubt whether the most nutritive compound swallowed with disgust, would not utterly fail of being properly assimilated. We are confident, therefore, that although every intelligent mind must admit that chemical research has been of the most invaluable service to pathology and therapeutics, we must still say of most chemical theories of organic processes, as was said by Cuvier^(a), of a similar attempt to explain the phenomena of organization by analogies drawn from the inorganic kingdom, half a century ago, "*Quelques vraisemblance que puisse avoir le principe en général, et quelque esprit que ces auteurs aient mis dans son emploi nous avons trop vu ci-devant combien la chimie des corps organisés est encore peu avancée, pour que nous puissions en espérer une application détaillée.*" Without knowing all, we may, however, know something of what takes place within us; we may sketch out some of the leading facts, without pretending to fill up all the details; and this is what has

(a) *Memoires de l'Institut. Rapport Historique sur les Progrès des Sciences Naturelles*, 1810.

been done by M. Bouchardat in applying to the treatment of diabetes, some of the knowledge which he had acquired respecting the changes which accompany rather than constitute digestion.

TREATMENT OF GLUCOSURIA

Most of our readers are probably aware that, for many years past, M. Bouchardat has been engaged in the most careful and continued study of the phenomena and treatment of diabetes. The knowledge of his being thus occupied has caused him to be consulted, in numerous cases of the kind, by country practitioners; and the vast hospital (Hotel Dieu, at Paris) to which he is attached as *pharmacien en chef*, has furnished him with the means of pursuing his researches on a very extended scale. For this task, the extent of his knowledge of chemistry, physiology, pharmacy, and practical medicine, render him qualified in an unusual degree, and an examination of his work will prove that he has not belied our expectations. His observations are singularly free from that exclusiveness, to which the mere chemist or physiologist is so liable, and the whole of his suggestions have a practical and common sense character, which bespeaks less of theory than of actual induction from facts. *Forty-two* cases of well-marked glucosuria are detailed at the end of the essay, and are well worth a careful perusal; but we can only state that of these, eleven terminated fatally, most of them from advanced phthisis, some from misery, others from intercurrent affections; fourteen others, having followed the *régime* recommended, with more or less strictness, experienced decided benefit; and the remainder, sixteen in number, were perfectly cured. The first element and basis of M. Bouchardat's treatment of glucosuria is, the exclusion from the diet of all substances capable of conversion into glucose. At first, in all the enthusiasm of a discoverer, he thought that this alone was sufficient, but he soon found that the means of cure are by no means so simple, and that they really embrace attention to a great number of minute particulars, the influence of which requires to be united, and carefully continued for a considerable length of time, in order to produce the desired effect.

Diet.—All farinaceous substances and their compounds, or those into the preparation of which starch in any way enters, must be most strictly prohibited. In enforcing this prohibition the greatest address is required, as the longing of the patient for such articles is very great; and it is above all things essential to successful treatment, that disgust for food, and consequent anorexia, should, if possible, be avoided. To satisfy the cravings for feculent substances, M. Bouchardat has invented a kind of bread, containing nothing that is convertible in the stomach into glucose. The mode of preparing this *gluten bread* is given below (*a*), and of its value in the treatment of

(*a*) *Gluten Bread.*—The gluten is best obtained by the process of M. E. Martin: 40 parts of water and 100 of fine flour are worked into dough, as in making bread, and then laid aside for about half an hour in summer, or an hour in winter, in order to allow time for the water to combine with the flour. The dough thus prepared is laid on a fine metal sieve, on which several fine

diabetes we have ourselves seen several very striking proofs in the practice of medical friends.

Animal food of all kinds, as well as eggs, milk, butter, and cheese, may be freely used, subject to the usual restrictions as to digestibility, &c.

The following vegetables are also proper to form a part of the diet of a diabetic patient:—spinage, endive, lettuce, sorrell, asparagus, *haricots verts*, cabbage of all kinds; the last may be very usefully combined with fat pork or salt bacon. Cresses of every kind, dressed with a large proportion of oil and hard boiled eggs.

A very agreeable and useful dish may also be prepared from fresh gluten, carefully deprived of starch, and combined with butter, and some kind of cheese grated.

The desert may be composed of olives, almonds, filberts, and walnuts. The following may also be allowed from time to time, but always in very moderate quantity, viz., apples, pears, cherries, currants, gooseberries, strawberries, raisins, and pine-apples.

Drinks.—Great importance in the treatment is assigned by M. Bouchardat to a proper selection of alimentary drinks. Theoretically, he regards spirituous liquors as belonging to the same category as oil and fecula, viz., ministers to respiration; and, by a judicious combination of the two extremes, oil, which burns away slowly, and alcohol, which is rapidly consumed, to obtain the effect of the intermediate substance, fecula. Experience proved that stimulants in moderate quantities are useful; but that they require much discrimination and very careful management. The red French wines, such as those of Bourgogne and Bordeaux, which have a certain degree of astringency, he has found to answer best; and of these he administers about a pint in the twenty-four hours. It is sometimes necessary, but under peculiar circumstances, to increase the allowance of wine to three or four times this amount; but the least approach of inebriation is always injurious. A patient of our friend, Dr. Hunt, who has been remarkably relieved by M. Bouchardat's mode of treatment, and who is still under Dr. Hunt's care, is invariably rendered worse by even a single glass of wine; and the same circumstance was observable in another case that we had under observation for some weeks.

streams of water are playing from a vessel suspended above, and being thoroughly worked with the hand, as in baking, until the water flows off uncoloured, the starch may be collected in the washings, and gluten to the amount of about one-fourth the weight of the flour employed will remain on the sieve, though of course the quantity varies with the nature of the flour. The gluten to be made into bread must be fresh prepared, as it begins to alter in a few hours. It is mixed with one-fifth its weight of the finest flour, and kneaded for a very long time with the proper proportions of salt and leaven, by which a very light and elastic bread, without odour, and very agreeable, is readily formed.

Gluten bread is highly nutritious, and, in addition to its use in the treatment of diabetes, has been found of the greatest value in those cases of dyspepsia, gastralgia, or whatever else they may be called, in which the simplest aliment is found to sour upon the stomach, giving rise to acid eructations, pain, and epigastric constriction.

Beer and all the saccharine liquors have been found injurious, as might be supposed; and, if used at all, should be taken very sparingly indeed.

Coffee is useful to almost all diabetic patients, and should be taken without sugar, or the quantity of the latter ingredient must be very small indeed.

Lemonade, and the other cooling drinks, give but temporary relief to the thirst, are, in this respect, no better than pure water, and are decidedly injurious.

Clothing ranks next to diet among the means of curing glucosuria. The whole body must be protected from sudden chills, and the insensible perspiration must be encouraged by being clothed in flannel.

Exercise, carefully regulated, and progressive, so as to avoid too great fatigue, and of such a kind—gymnastic exercises or manual labour, for instance—as is accompanied with pleasure, will, in all cases, be found of very great service in promoting the cure.

Baths have not been found by M. Bouchardat of much general utility. Tepid baths are occasionally useful, when there is no danger of the patient catching cold; and swimming baths, especially in the sea, when they can be borne at all, are often attended with the most rapid and beneficial results.

MEDICAL TREATMENT in glucosuria, though useful and never to be neglected, can only be considered as subsidiary to the other means employed.

Carbonate of Ammonia M. Bouchardat has found of very great utility; but its use should always be united with the constant wearing of very warm clothing, or the medicine passes off by the kidneys, and gives rise to an alkaline state of the urine. It is exhibited in the following combination:—carbonate of ammonia, 77 English grains; rhum, 310; water, 1550. One-third to be taken half an hour before each meal. Or it may be prescribed in the form of a bolus, each containing eight grains of the carbonate, with an equal quantity of thériaque; from two to ten to be taken each night on going to bed. M. Bouchardat was unable to determine whether, in glucosuria, the ammonia acts as a stimulant or a diuretic, or what is the mode of its action; but of its efficacy in the treatment of rebellious cases he has fully satisfied himself.

Vichy water has, in some cases treated by MM. Jadioux and Bouchardat, been found of very decided efficacy. The alkaline bicarbonates generally, and especially that of soda, have been very highly recommended by MM. Contour and Mialhe. The latter gentleman, indeed, places his chief reliance on alkalies given in some form; and he has brought before the Academy, at different times, cases of glucosuria successfully treated by that means almost alone. M. Mialhe is, however, so very exclusive in his chemical notions, if we may judge from the work that he has published, that we fear his medical observations must be very much modified by his chemical enthusiasm; and that his notions of what *ought* to take place will, as often happens with

the greatest men and the most would-be impartial observers, make him very blind to the real facts, and most ready to adopt as proofs what are really very far from being such. Besides being found by M. Bouchardat (whose extensive experience in diabetes renders every observation of his on this subject of very great weight) very much inferior in therapeutic efficacy to the carbonate of ammonia, MM. Honoré and Gueneau de Mussy have found it in some cases actually injurious.

Dovers Powder and Opiates.—Every practitioner has experienced the benefit of these medicines in some cases, as palliatives, though many regard them as capable alone of effecting a cure. M. Bouchardat employs them only as diaphoretics. Morphia, or pure opium, he never prescribes in diabetes, lest the stomach should be put out of order; but Dover's powder, in doses of ten or twelve grains at bed-time, he has found most efficacious; though, of all the opiates, he regards the theriaca (divina) as that from which by far the most favourable results have been obtained. He gives this preparation, the absurd complexity of which he does not pretend to be able to reform, in doses of from half a drachm to a drachm every evening. The last-mentioned quantity contains about one grain of crude opium.

Chalybeate and tonic Remedies.—When the pallor and other symptoms give the case a great similarity to chlorosis, the tonic bitters, alone or combined with iron, will be found of much therapeutic value. The preparation of iron most valued by M. Bouchardat, viz., the pulverized iron, or the metal reduced by hydrogen(a), has been but recently introduced into this country; but if the price could be rendered more moderate, we have no doubt that it would speedily become a general favourite with physicians.

Common salt was formerly regarded by M. Bouchardat as a useful remedy from the diminution of thirst which diabetic patients experience after partaking of salt meats; but although, under such circumstances, the quantity of glucose passed also diminishes, no permanent or decisive benefit has been obtained from the employment of this means of treatment.

Evacuants.—M. Bouchardat commences his treatment by the administration of an ipecacuanha emetic, followed by a purgative to free the bowels of anything injurious that may be detained there; but he finds evacuant medicines, though so highly recommended by authors, of no real use afterwards, except to combat particular symptoms.

In speaking of digestion, we mentioned that certain substances have been found at once to put a stop to the action of diastase, and it is curious that these are chiefly the very medicines which have been most highly vaunted, by the older authors, as the proper remedies for diabetes. They have all, however, been found of little or no real value, except where, being unable to submit the patient to any regular treatment, we seek only to procure a temporary relief; the

(a) See Retrospect of Materia Medica, by Dr. Neligan, in the last Number of this Journal.

remedies of this class are lime water, calcined magnesia, alkales, nitric, phosphoric, and sulphuric acids, alum, tannin, and the other astringents; and some of the writers, by whom they have been found successful, we have mentioned in the notes at the bottom of the page (a).

Bleeding is the last therapeutic means we have to consider. General bleedings have been recommended by a long list of writers, from Aëtius downwards; but M. Bouchardat has found them, as indeed might have been expected, invariably injurious. Abstraction of blood, by leeches and cupping, from the epigastrium, as recommended by Sir H. Marsh (b), Bardsley, Forbes, &c. (c), from the loins, as advised by others, and from the anus, when the appearance of the disease has coincided with the suppression of hæmorrhoids, has been occasionally had recourse to by Bouchardat, and often with benefit.

In concluding our abstract of the researches on the theory and treatment of saccharine diabetes, we would repeat the caution so often given by M. Bouchardat, that the practitioner is to place his chief reliance on the dietetic and hygienic means advised; and that it is from a combination of favouring circumstances, and not from any one single means that any decided benefit is to be obtained. For ourselves, having had several opportunities of seeing patients treated successfully on the above rules, both by M. Bouchardat himself, and by other practitioners, we feel convinced that whatever may be the truth of the theory, the practice is, in very many cases, the best that can be pursued.

(a) Calcined Magnesia, by Traller (*New England Journal of Med. and Surg.*, 1824.) and Hufeland (*Journal*, 1833). Lime water, by Willis (*Works*). Zorn (*Sobernheim Arzaneimittell*, 1836), and Schütz (*Allg. Med. Ann.*, 1801). The Ammoniacal Salts, by Hufeland (*Enchiridium Med.*, 1836). Peter Frank (*De Curandis Hominum Morbis*); Dürr (*Hufel. Journ.*, 1833); and Newmann, who, by-the-by, entertains the curious and very original notion that the testicles are supplemental to the kidneys, and that the main indication in diabetes is to excite the procreative powers (*Spec. Path. u. Ther.*, t. 2, *Chron. Krankenh.*, 1832); Alum, by Mead (*Opera Omnia*, &c.), Brocklesby (*Med. Obs. of Soc. of Physicians of London*); Meyers (*Diss. Inaug. de Diabete*, Ed., 1799); and Herz (*Selle. Neue Beitræge*, &c., t. i.). We have both ourselves prescribed alum with most decided benefit, and, when residing in Jervis-street Hospital, we remember to have seen two very remarkable cures effected by Dr. Hunt with that remedy. In all instances, however, cupping to the loins was also simultaneously employed. Kino has been found efficacious by Meyer Abrahamson (Meckel, *Neues, Arch. der pr. Arn.*, 1789), and Shee (Schmidt, *Recepte*). Tannin, by Giadorow (*Annali Univ. di Med.*, 1832). Creasote, by Hufeland (*Enchiridium*); Cornelian (Esperienze, &c., *del Creasote*, Pavia, 1835); Elliotson (*Lond. Med. Gaz.*, 1835, and *Medico-Chirurg. Trans.*, vol. xix.); and Berndt (*Lancet*, July, 1835). Carbonate of Soda, by Hufeland. Sulphuret of Lime, by Haug (*Annal. f. Heilk.* Carlsruhe, 1833). Phosphate of Soda, by Sharkey (*Tr. K. and Q. College of Physicians in Ireland*, 1824). Sulphuric acid, by Fraser (*Ed. Med. and Surg. Journal*, 1806). Nitric acid, by Brera (*Bibl. Ital.* t. vi. 1817); Gilby (*Allg. Med. Ann.*, 1802), &c. &c. In short, like all inveterate maladies, cases have got well under every treatment, and consequently, as in hydrophobia, the specifics are almost as numerous as the cases treated.

(b) Dublin Hospital Reports, vol. iii.

(c) Cyclopædia of Practical Medicine.

SUPPLEMENTARY REMARKS ON FEVER.

Mr. Grantham, in the *London Medical Gazette*(*a*), has propounded some new notions on the nature and treatment of fever. His views are, however, so extremely, not to say absurdly, theoretical, and so completely opposed to the experience of every one who has seen much of the disease, that we deem it unnecessary to allude to them farther.

Some remarks on fever from the pen of Dr. Corrigan(*b*) have also appeared in the *Dublin Hospital Gazette*. Dr. Corrigan views typhus, not as a local disease, but as one affecting the whole system, and exerting its principal influence on the blood, and more particularly on the capillary circulation. The diminished force of the capillary circulation is evidenced by the tendency to form bed-sores, and by the appearance of petechiæ and maculæ. Dr. C. makes the distinction between petechiæ and maculæ to be, that the former are effusions of blood, and hence do not disappear on pressure, whilst the latter are but the result of congestion of the capillaries, which are emptied and rendered colourless by pressure. The darkness of the petechiæ he regards as indicative of this weakness, and of the gravity of the case. His views of the manner in which the circulation is affected, also lead him to consider a moist tongue as favourable, and a dry one as unfavourable in typhous fever. This last observation is certainly not in accordance with what we have seen of the disease. To our mind typhous fever has a certain type, one of the characters of which is dryness of the tongue; and any deviation from the typical phenomena, anything *outré* or abnormal, in the course of fever, is to be looked on with apprehension, simply because it is unusual. Wine is given to combat the feebleness of the circulation. The colour of the petechiæ, the lividity of the face, and the weakness and rapidity of the pulse, are the indications which command its administration, even though the state of the intellect, the tongue, and the digestive organs, might seem to give a direct prohibition. Dr. Corrigan speaks of albumen in the urine as frequent in fever, and as being an evidence of the lesion of circulation to which he attributes the chief characters of the disease; but we are inclined to think that his clinical clerk has been imposed on by a precipitation of phosphates, which are often thrown down by boiling, in a form very much resembling albumen. We have often looked for albumen in the urine in fever, but have never met with it, even in very bad cases(*c*). He also attaches considerable importance to the presence of a deposit of lithates in the night urine, whilst none is met with in the urine passed during the day. We have been accustomed to ascribe this simply to the greater transpiration which takes place during sleep, and during the night ge-

(*a*) *Medical Gazette*, Dec. 12, 1845, p. 1420.

(*b*) *Dublin Hospital Gazette*, vol. ii. pp. 228, 260, and 273.

(*c*) The pathological value of the indications afforded by the urine are more correctly and more concisely given in "*Lectures on Urinary Diseases*, by Dr. Aldrige, 1846," than in any work that we know of.

nerally, not to any thing at all resembling exacerbation. Perfectly analogous phenomena are noticeable in the state of health. Dr. Corrigan does not allude to the sounds of the heart, as indicating by their peculiar character the necessity of giving wine; but we are convinced of the very great value of this sign, and would refer the reader to Dr. Stokes'(*a*) admirable paper on the subject, and to Professor Huss's(*b*) confirmation of Dr. Stokes' views, which will be found contained in a previous volume of this work.

In fever, as every practical physician is well aware, a combination of hygienic precautions, scarcely alluded to in books, is far more important than any mere pharmaceutic remedies that can be employed in effecting a cure. The object of the sound physician is, as it has been somewhat paradoxically expressed, "to keep the patient alive until nature has time to cure the disease." We know of no work in which these important trifles are so well exposed and explained as in Dr. Corrigan's Lectures, and to them we would refer the reader for most useful details, which it would be altogether impossible here to condense.

A very excellent essay (which obtained the prize offered by the Connecticut Medical Society) on scarlet fever, by our friend, Dr. P. W. Ellsworth, of Hartford, Connecticut, has been published in the Boston Medical and Surgical Journal(*c*). This essay we have read with very great pleasure, but our limits prevent us from analyzing it on the present occasion. It will be found to contain many new views on disease and on the action of remedies, and to embody the results of very extensive practical observation, and scientific study, of an affection often singularly puzzling and irregular in its course and symptoms,

Although we have read a great many papers, published in the French, Italian, and German journals, on the treatment of intermittent fever by arsenic, and a comparison of this mode with the ordinary treatment by quinine, we would sum up the whole of the results arrived at, in the very short statement, that arsenic cures intermittent fever, but always requires a much longer time, and is far more frequently unsuccessful, than quinine given in proper doses, and at the proper times; but that in those cases in which quinine fails to effect a cure, arsenic not unfrequently succeeds.

(*a*) Dublin Journal, vol. xv., p. 1.

(*c*) Vol. xxxiii., pp. 269, 289.

(*b*) Dublin Journal, vol. xxviii., p. 263.

Note referred to at page 251.

The exceptions to the above rule are less numerous than might be expected, and many of them admit of some approach to an explanation. Thus, the hedgehog, bear, &c., have large salivary apparatus; but we know that these animals eat freely of vegetable food. The echidna spinosa and the two-toed ant-eater have likewise well developed parotids; but they both live on ants, which are composed in great part of formic acid, a substance not found in the structure of other animals, but into which fecula is transformed during digestion. The peterels also have very large salivary glands, and their digestion seems, in consequence, to be quite peculiar, these animals ejecting from their mouths on their pursuers an oily fluid, which is the only substance ordinarily found in their stomachs, and which formerly gave rise to the idea that they live solely on fluids.—See *D'Urville's Voyage, Cuvier, &c.*

MEDICAL MISCELLANY.

ILLUSTRIOUS PHYSICIANS AND SURGEONS IN IRELAND.

No. I.

SIR PATRICK DUN, KNT., M. D., M. P.

State Physician in 1700, Founder of the School of Physic in Ireland.

With a Portrait.

LORD BACON, in his "Advancement of Learning," after remarking on the variability of the human frame as a cause for the conjectural character of Medicine in his time, writes as follows:—

"And therefore I cannot much blame physicians that they use commonly to intend some other art or practice, which they fancy more than their profession; for you shall have of them antiquaries, poets, humanists, statesmen, merchants, divines, and in any of these better seen than in their profession."

And he gives as a reason, that "they find that mediocrity and excellency in their art maketh no difference, in profit or reputation, towards their fortune." Let us admit the fact, but suggest a different interpretation.

We believe it is true (and we appeal to history to justify our conclusions), that if in the profession of medicine are to be found many distinguished in other branches of science, it is not because they have turned to these pursuits as a relief from the practice of a conjectural, inconsequential art, but that the same high tone of mind, the same spirit of inquiry, and love of truth, which disposes men to these pursuits, fits them alike for a profession which calls on every great quality of the mind for its exercise. Men possessing such qualifications cannot be mere physicians or surgeons, for their minds are too comprehensive, and they turn to these things from the very fruitfulness of their own nature.

"Qui sapit, innumeris moribus aptus erit."

It is true that physicians have ever been distinguished for eminence in other pursuits; and the best proof of the value of their more immediate studies is, that they do not act in destroying their tastes for other pursuits, or lessening their powers for other investigations.

No man was ever truly great in his department who was ignorant of all else but what was sufficient for its exercise. But there are lasting, tangible evidences that the belief in the inconsequence of his art formed no part of the physician's creed. We may pass by the long lives of labour and painful investigation of the great masters of medicine, and the works they have left us, and appeal to the fact of their endowment of splendid institutions for the exercise of that art to which they were devoted. We need not travel out of our own city in evidence of this; witness the Lying-in Hospital, Steevens' Hospital, and the bequest of Sir Patrick Dun,



Wat: Dun President

from which sprung the School of Physic of Ireland, and the institution which bears his honoured name.

The Irish College of Physicians owes its origin, in a great measure, to Dr. John Stearne, a Fellow of Trinity College, who, about the year 1654, purchased a house then called Trinity Hall, now occupying the site of the present Trinity-place, Dame-street, for the Fraternity of Physicians in Dublin, of which he was the first President; (for an account of which we refer our readers to a learned article on the origin and early history of the College of Physicians, by Dr. Aquilla Smith, in the nineteenth volume of our former series). The first record of the establishment of any medical corporation in this country is contained in a letter of Charles I. in 1626, to Lord Falkland, Deputy General in Ireland. In 1654 we find Dr. John Stearne President of Trinity Hall. In 1662 he was elected public Professor of Medicine in Trinity College; and in 1667 the first charter of the physicians of Dublin was received from Charles II. Up to this period, however, there was no regular school of physic in Ireland; and for its establishment the country is indebted to the distinguished individual who forms the subject of this memoir.

Sir Patrick Dun was a native of Scotland, but as Ireland was the country of his adoption, we place him in the ranks of those who deserve our regard, as having advanced the interests of Irish medicine; and we here wish to state, that in the lives and memoirs of eminent physicians and surgeons in Ireland, with which we hope to present our readers, we do not intend to limit ourselves to the notice of those who have been natives of the country, but to include all who have laboured to promote the interests of medical science in this kingdom, and have thus identified themselves with Ireland.

We have alluded to the benefits conferred on humanity by the philanthropy of medical men in Ireland, and have specified three of the most important institutions of the country in support of our assertion. We had hoped that circumstances of such value in medical history would not have been omitted or overlooked by any European historian; we therefore expected to have found in the list of medical worthies enumerated by Mr. Pettigrew, in his "Medical Portrait Gallery," the names of some of those Irish physicians and surgeons who have earned for themselves an undying reputation, in bequeathing to their country monuments like those which are our boast. There is, however, no notice of any native of Ireland who practised in this country, in that book. Were there no Molyneauxes? Was Sir Hans Sloane (we believe the first medical baronet) unworthy of notice? And were not the names of Colles and of Crampton as worthy of note as many whom Mr. Pettigrew has recorded, though not honoured? Let us hope that our next medical biographer will investigate before he writes, and not omit names which he should have inserted, while he devotes forty-eight pages of his book to his own biography, even though "in accordance with a wish very generally expressed," by his friends(*a*).

(*a*) The only Irishman, acknowledged as such, introduced into Mr. Pettigrew's

Sir Patrick Dun, descended from the ancient Scottish family of Dun, of Dun, near Montrose, was born in Aberdeen in 1662, of which city his father was a distinguished merchant and burgess. His uncle, Patrick Dun, was the principal of Marischal College, and founder of the Grammar School of Aberdeen. We have no record of the time at which Sir Patrick Dun settled in Dublin, but we find him, in 1681, President of the College of Physicians, an office which he again filled in 1690 and 1693; and he is named in the charter of 1693, along with Howard, Molyneaux, and Steevens. In procuring of the charter from William and Mary, by which the College took the name of the King and Queen's College of Physicians, he took a very active part. He was one of the founders of the Dublin Philosophical Society of 1683; in which body he read a paper on the Analysis of Mineral Waters. And it is an interesting fact, to which we have before alluded, that the first record of a public dissection in this city is that made by Mr. Patterson in 1684, of the body of a malefactor procured for that purpose by Sir Patrick Dun. He filled the office of State Physician for many years, and was knighted on the 29th of January, 1696, by the Earls of Montrath and of Drogheda, then Lords Justices of Ireland. In 1699 he married Miss Jephson, a native of the county of Cork, but had no issue.

Sir Patrick Dun served in the Irish parliament as member for Killyleagh, in the county of Down; and that he must have enjoyed considerable popularity as well as rank is instanced by the fact, that he was also returned for Mullingar, at the same election, but chose that which we have just specified. He resided at one time in Skinner's-row, but subsequently on the Inns'-quay. He died in 1714, and was, in accordance with his will, privately interred in St. Michael's Church in this city.

His will has been published by Professor Osborne, who, in his interesting "Annals of Sir Patrick Dun's Hospital," observes that "It is worthy of being recorded, although containing some irrelevant matter, inasmuch as it is the instrument from which the School of Physic originally derives its present support. It is to be observed, that the lands in the county of Waterford, which he held by lease from the Duke of Ormond, produced at the time of his framing the deed (to which the will refers), only a profit rent of £52 per annum; but that he contemplated it would rise, on the expiration of the leases then in existence, to £200, and he proposes it as a query *whether this sum could not support two Professors?*"

The last item in this interesting document we insert at length:—"Item.—I devise all the remains of my real and personal estate, not above disposed of, viz. my fee-farms and real estate, after the determination of the devise to my wife, during her widowhood, and all my personal estate, after discharging and fulfilling the lega-

work, is the late Dr. James Johnson, the editor of the *Medico-Chirurgical Review*; but he practised in London. Dr. Cheyne is introduced, it is true, but he was not an Irishman; while Mr. Abernethy, a native of the county of Antrim, is stated by Mr. Pettigrew to have been born in Finsbury-square, London.

cies and devises herein before mentioned, unto the said Patrick Dun of Tardy, Esq., and unto the said Doctor Patrick Mitchell, their heirs, executors, and administrators, respectively, to the use of, and in trust for themselves, their heirs, executors, and administrators respectively, until there shall be a Professor of Physic established in the College of Physicians in Dublin, to continue for ever by succession, according to the rules and directions, and under the regulations by me laid down, or to be laid down and expressed in a certain instrument in writing, under my hand and seal, entitled 'The scheme which I intend to have observed for the establishing a Professor of Physic in the College of Physicians in Dublin;' and from and after such time as such Professor shall be accordingly established, then in trust, that the said Patrick Dun of Tardy, and Patrick Mitchell, and the survivors of them, and their heirs and assigns, shall, by such conveyances and methods as shall be reasonably desired by the Council of the said College of Physicians, convey and assure or secure the said residue of my said real and personal estate, so to them devised, to answer and fulfil my intentions expressed in the said paper, entitled—The scheme which I intend to have observed for the establishing a Professor of Physic in the College of Physicians in Dublin, be it by Act of Parliament, or otherwise, howsoever."

A copy of the instrument here referred to, is in the archives of the College; its provisions are recited in an Act of Parliament, passed in the twenty-first year of George II., entitled, "An Act for vacating the Office of King's Professor of Physic in Dublin, upon the Death, or Surrender, of the present King's Professor, and for erecting three Professorships in the said City, instead thereof." The preamble to this Act, after reciting the general purposes of Sir Patrick Dun's will, states, that the property is to be vested in trustees, until there should be a Professor of Physic established in the College of Physicians in Dublin, to continue for ever by succession, according to the rules expressed and laid down in a certain instrument in writing under his hand and seal, intituled, "The scheme which I intend to have observed for the establishment of a Professor of Physic in the College of Physicians in Dublin;" and the same document goes on to state, "that the deed or instrument was signed by Sir Patrick Dun on the 8th June, 1704, when he declared, amongst other things, that it was his desire and intention to make provisions for one or two Professors of Physic, and for reading public lectures, and making public anatomical dissections of the several parts of human bodies, or bodies of other animals, to read lectures on osteology, bandaging, and operations of Chirurgery, to read botanical lectures, demonstrate plants publicly, and to read public lectures on *Materia Medica*."

Our friend, Dr. Jonathan Labatt, Registrar of the College, to whose kindness we owe the opportunity of perusing these documents, informs us that this act was never printed. It contains a clause, (the only one of the original scheme now remaining in force),

which provides that, in case of equal claims on the score of merit, the preference is to be given, on the election to professorships, to the descendants of Patrick Dun of Tardy.

In 1743 an Act was obtained by which three professors, styled the King's Professors of Physic, of Surgery and Midwifery, and Pharmacy and Materia Medica, were established; and in 1763, the estates having increased in value, the College, finding that additional professorships were required, and that maintenance should be provided for patients, so as to establish a system of clinical institution, obtained an Act of Parliament by which chairs of Anatomy and Surgery, Chemistry, and Botany, were attached to the University; and creating others of the Institutes of Medicine, Practice of Medicine, Materia Medica and Pharmacy, Natural History, and, contingently, that of Midwifery, together with provision for clinical lectures, and for the support of the library. At this time the practice of lecturing in the Latin language was abolished. Other enactments, in the year 1800, enabled the College to erect the present Hospital, bearing the name of Sir Patrick Dun.

"Subsequent Parliamentary grants enabled the Commissioners to complete the building conformably to the original plan. They provided for the accommodation of the professors and students, by devoting a considerable part of the central building to a theatre for lectures, and private rooms for Professors. This central building likewise contains three spacious apartments—one fitted up for the library of Sir Patrick Dun, the other used by the College of Physicians as their place of meeting, and the third a board-room, together with ample accommodation for the apothecary and matron. The two wings appropriated to the reception of male and female patients respectively, are thus completely separated, each of them being provided with a separate staircase, extending to the underground offices."

The School of Physic of Ireland is an institution which has worked well for science and the country. It has produced a long succession of eminent physicians; and, by its incorporation with the University and the College of Physicians, has in its constitution the means of advancement. It is well circumstanced to become a great national institution. Placed in a metropolis in which are a greater number and variety of hospitals than, we believe, can be found in any other city of the same size; and with the advantage of a Surgical school and a Lying-in Hospital, inferior to none in the world—having attached to itself a noble medical institution, an excellent library, and a pathological and obstetrical museum—in close connexion with the University—with independent funds and a careful government, it seems capable of a great extension of its utility, an object which every man who has the interests of the country at heart, and who wishes to see the objects of Sir Patrick Dun fully carried out, must desire. The University, we have reason to know, is ready to do its part in advancing the interests of the medical schools of Ireland; and we doubt not that ere long we shall see such changes and improve-

ments as the time demands. We cannot, in an article like the present, enter into the question of medical education *in extenso*; but, referring to the School of Physic, and its interests, we may point out a few alterations which are desirable.

The first would be, that medical education, so far at least as the fees to professors and for attendance on the hospital are concerned, should be made free to all students who have attained a certain standing in their University undergraduate course, or who have taken the degree of A. B.; so that a bonus should be given to induce young men preparing for the profession to give themselves a proper preliminary education.

In the second place, we desire to see new chairs created; and we would specify Surgery, Clinical Medicine, Morbid Anatomy, and Medical Jurisprudence. To the existing system of clinical instruction we have great objections: for it cannot be expected, in the present state of science and opinion, that the professors of botany, anatomy, and chemistry, can give effective instruction in clinical medicine, which requires that it should be taught by a practical and practising physician.

Thirdly—the school should be concentrated, so as to enable the student to attend the various courses of lectures under the one roof.

Fourthly—we desire to see public rewards for merit established. The Board of Trinity College have lately taken the first step in this direction, by the foundation of anatomical and botanical prizes. But the system should be extended, until we have medical exhibitions, scholarships, and prizes, established on a liberal scale.

Fifthly and lastly—we believe that a much more extended reciprocity with respect to testimonials of education should be established.

These are some of the leading points to which we would respectfully direct the attention of the patrons of the School of Physic. We believe them at least worthy of consideration, as means by which the reputation of the institution founded by the philanthropist whose memory we wish to honour, may be promoted; so that when they look back with pride to the names of Stearne, Petty, Molyneaux, Mullen, Rutty, O'Connell, Percival, and Cheyne, they may feel that their example and their influence have not been left in vain.

The original portrait from which we present our readers with the accompanying engraving, was painted by Sir Godfrey Kneller. It remained for many years in the possession of Lady Dun, and was obtained by Peter Walsh, Esq., of Billine, from Mrs. Jephson, the widow of a grand-nephew of Lady Dun's; and was presented by Mr. Walsh to the College of Physicians in 1817, who placed it in their hall.

Memoir of the Life and Writings of the late JOHN HOUSTON, M.D., M.R.I.A., Fellow and Curator of the Museum of the Royal College of Surgeons, one of the Surgeons of the City of Dublin Hospital, &c. &c.(a)

DR. JOHN HOUSTON, eldest son of a Presbyterian clergyman in the north of Ireland, was born in the year 1802, and when a boy was adopted by his maternal uncle, Dr. Joseph Taylor, who was then Physician to the Forces, and by whom he was destined for the medical department of the army. In 1819 he was bound to the late Mr. Shekleton, one of the first anatomists that Dublin has produced, and at that time a demonstrator to the school of the College, as well as the founder of the magnificent museum belonging to that body.

We cannot, even in this notice of another, pass onward in the narrative without stopping to pay a tribute to the memory of a man to whom the Dublin School of Medicine is so much indebted. From the period when Shekleton was bound apprentice to Mr. Colles in 1810, to the date of his decease in 1824, his zeal, energy, and talent in the acquisition of professional, and more particularly anatomical knowledge, was unparalleled; and before his apprenticeship was concluded, he had added considerably to the scanty supply of preparations which the professors of the College school then possessed for the purpose of exhibiting at lecture. In 1817 he was appointed demonstrator of anatomy to the College School, and so ardent was his love of that science, in which he excelled all his compeers, that he devoted his entire time and income in laying the foundation of that collection, the numerous specimens of which must remain, *if properly taken care of*, memorials of his unwearied industry, his eminent anatomical talent, and his acknowledged taste. In June, 1820, the College, becoming sensible of the great utility of Mr. Shekleton's services, allocated an apartment in their hall (the present library) as a museum, and appointed him their curator, an office which he continued to fill with unabated ardour, till unfortunately he died from the effects of a dissecting wound in May, 1824, in the 29th year of his age(*b*). The crowded state of the museum at the time of his death, led to the erection of the present building in which the collection is placed.

About the third year of his apprenticeship, Dr. Houston's uncle died; but the liberality and kindness of Mr. Shekleton prevented in a great measure that loss from being felt, and elicited the warmest gratitude of his pupil, who in a short time became enamoured

(*a*) For the materials of this memoir (which we are of necessity obliged to abridge considerably), we are indebted to R. G. Butcher, F.R.C.S.I., Demonstrator of Anatomy in the Dublin School of Medicine.

(*b*) See the history of his case by the late Professor Colles in the fourth volume of the Dublin Hospital Reports, page 240. Mr. Shekleton himself wrote a valuable paper on "Dissections of Aneurism," in the third volume of the same work.

of those pursuits in which his master so much excelled, and more-over attached himself to many by his assiduity, his gentle disposition, and his varied talents. Dr. Houston's apprenticeship terminated in 1824, and he had prepared for his examination as a Licentiate with great industry; but on the morning of the day for which that ordeal was fixed, he followed the remains of his attached friend and master to the grave. Notwithstanding this, he passed his examination with great celerity.

Upon the death of Mr. Shekleton, the College of Surgeons resolved to throw the office of the curatorship of its museum open to public competition, the tests of qualification being the number and superiority of preparations made by the candidate within three months from the date of advertisement. Dr. Houston, young as he was, was induced to become a candidate, and found himself, on the day of election, without a competitor. The preparations which he then exhibited, some of which still remain, are admirable specimens, exhibiting great elegance of design, and mechanical skill, added to profound anatomical knowledge. He retained his office as curator till the year 1841, when he resigned it, owing to more pressing engagements^(a). The fruits of his labours during these seventeen years, are to be found in the noble collection at present in the College. In connexion with this museum, Dr. Houston published two descriptive catalogues, the first in 1834, containing an account of those preparations which illustrate the form and structure of animals in their normal state; the second in 1840, giving a description of these structures when altered by disease: works exhibiting an immensity of research, intense labour and application, a most extensive knowledge of both human and comparative anatomy, and a practical acquaintance with the products of disease. They have greatly enriched the pathological department of the museum of the College of Surgeons, every specimen in which has thus its value enhanced by the graphic descriptions of the talented author. As we have already reviewed both these publications at length, in the sixth and twenty-third volumes of our former series, it is not necessary here to enter into their merits.

Shortly after his election to the curatorship, he was appointed one of the demonstrators of anatomy in the College school, in which capacity he was a great favourite, especially with the students, to whom, by his punctuality, his great attention, and his clear and comprehensive mode of demonstrating, he had particularly recommended himself. As a lecturer, his manner was very attractive; clothed his ideas in intelligible and appropriate language; and he possessed that rare faculty in an anatomical teacher, of interesting his audience in the object of his discourse.

In 1826 Dr. Houston graduated in medicine in the Edinburgh University, and in 1829 he was elected a member of the Royal Irish Academy. On the establishment of the City of Dublin Hospital in 1832, Dr. Houston became one of the surgeons of that institution, and

(a) The office of curator of the museum of the college remained vacant till the present year, when Mr. Carte was appointed.

here an opportunity occurred for displaying his capabilities for the practical part of his art, which the public and his professional brethren were not slow in appreciating. He was not only an acute observer of disease, but an admirable operator, and an excellent clinical surgeon in every respect. In 1837 he became a lecturer on surgery in the Park-street School of Medicine, in connexion with Mr. Cusack, which place he continued to fill till the period of his last illness. In the Park-street School he commanded a numerous and respectable class, as his lectures were not only particularly attractive from the practical knowledge comprised in them, but from their containing every new and important improvement in that science which they were intended to teach. Among the many splendid collections of normal and pathological anatomy which this city affords, there is none more worthy of attention than that connected with the Park-street School, enriched as it has been in its normal department by Jacob, Hart, Alcock, Carlisle, and Hill; and in the pathological department by Crampton, Marsh, Graves, Cusack, Stokes, Porter, Wilmot, Beatty, and others; but the treasures of this collection remained known to but a few till the year 1843, when Dr. Houston published his descriptive catalogue of this museum.

Dr. Houston was medical officer to several of the institutions in Dublin; he was also honoured with the corresponding membership of the Institute of Washington, the Society of Naturalists of Heidelberg, and other learned bodies of a like character.

In April, 1845, Dr. Houston, while delivering his clinical lecture at the Hospital, was attacked with violent head symptoms, the result of an overworked brain; and although the immediate symptoms were arrested, and he lingered on for two months longer, his disease terminated fatally on the 30th of July, 1845.

We now proceed to enumerate his various writings, and to give a brief analysis of the most remarkable of them, for it would not be possible, even were it necessary in a memoir such as the present, to describe each in detail. The first paper which Dr. Houston published, was in the second volume of the Dublin Hospital Reports, which appeared in 1827, being "An account of an unusual Variety in the Femoral Artery." Although a brief communication, this is one of considerable importance in a practical point of view, as the variety here described is one which would have led, where it existed, to great embarrassment in any operation upon this large vessel, particularly as the bifurcation occurred at the place at which the femoral artery is usually tied for popliteal aneurism. The preparation exhibiting this abnormal condition is preserved in the museum of the College of Surgeons; and what adds particular interest to the case, is the fact, that while Dr. Houston's paper was passing through the press, a similar description of arterial malformation occurred in a Negro who became the subject of an operation in the Middlesex Hospital, for popliteal aneurism, and in whose case all the difficulties suggested by Dr. Houston did really occur. An account of this case has been published by Mr. C. Bell, in *Anderson's Quarterly Journal* for October, 1826.

The scientific labour on which Dr. Houston's character as a naturalist and a profound anatomical investigator rests, is his elaborate essay, published in the Transactions of the Royal Irish Academy in 1808, "*On the Structure and Mechanism of the Tongue of the Chameleon*," the engravings in which, from the beautiful drawings by Dr. Houston, prove him to have added to his many other accomplishments that of a very accurate and tasteful artist.

Our readers are no doubt aware of the phenomena which attend the prehensile powers of this very interesting little animal, by which it is enabled to project from its half-opened mouth, a tongue nearly as long as its body, with which it strikes with unerring aim, the fly or insect on which it feeds, and fixing it by means of a glutinous exudation on the cup-like cavity at the extremity of this organ, carries it back into its mouth with the same rapidity with which it was projected. The mechanism, however, by which this remarkable erection and projection of the tongue is produced, was long a subject of interesting inquiry, and after a fierce dispute between anatomists and physiologists, Perraut endeavoured to explain this curious action, by asserting that it was an effort of forced expiration; and many of our readers are, no doubt, aware, that Sir Philip Crampton, a few years ago, revived this theory in part, and in a most ingenious explanation which he gave at a zoological lecture, where he exhibited several recent dissections of the parts, and also some models and diagrams illustrative of the theory, endeavoured to establish the fact, that the chameleon possesses the voluntary power of forcing air into the tubular cavity of its tongue, by which means the organ becomes erect, and is suddenly protruded. And certainly, the circumstance of the large sac or pouch connected with the larynx of the chameleon and its tubular tongue, demands still further investigation. De La Hire ascribed its erection to its elasticity, like that shewn in a spiral spring; and Cuvier considered it entirely owing to muscular action. This latter explanation, however, was not considered fully adequate to the production of the several effects observed, and Dr. Houston shewed that another agent was called into operation, and that this agent consisted of a highly organized vascular or erectile tissue, an organic element which about that period had been particularly noticed by Dupuytren and Rullier. Dr. Houston observed, that the moveable part of the tongue consists of two portions;—the anterior or true prehensile part, undergoes no change during the projection or elongation of the whole body, but has several powerful muscles attached to it, running between it and the long stile of the hyoid bone. The second, or posterior portion, Dr. Houston discovered to be erectile, and placed between the anterior or prehensile portion and the os hyoides; and it is this part which exhibits the remarkable changes in bulk under the circumstances of the animal's excitement and projection of the tongue. Having minutely described the anatomy of the organ, which he dissected with great care, he described the vessels of the part, which are visible even to the naked

eye, but, when examined under a good lens, are seen like a beautiful trellice work, their branches closely intersecting and inosculating with each other, to incalculable minuteness; and by a series of intricate anatomical mechanisms, this portion of the tongue becomes suddenly injected and erect, in the same manner as the penis and other portions of the animal body endowed with a like property. The blood of the animal, from the diminutive size of its globules, is particularly favourable to such a minute injection of its ultimate vessels, and the whole structure of the vascular and circulating apparatus lends exceeding probability to the theory advocated in this paper. The heart consists of but one ventricle and two auricles, with each of which cavity there is connected a large sinus, which Dr. Houston was the first to describe, and which very probably is intimately connected with the power which the animal exercises over the erectile portion of the tongue, and even upon the condition of the skin, the two parts which have gained such notoriety for this singular animal. Several beautiful preparations, exhibiting the parts just described, have been placed by Dr. Houston in the museum of the College. From this paper, therefore, it would appear, that although the tongue of the chameleon is partly set in motion by the ordinary muscular action which influences that organ in other animals, and in particular by the protrusion of the *os hyoides*, that the chief cause of projectile power which the animal appears to possess, is either the injection of the erectile vessels from the lingual arteries, or the retardation of the egress of the blood from the latter into the veins(a).

In 1830, Dr. Houston published several valuable anatomical and pathological observations, in the fifth volume of the Dublin Hospital Reports, consisting of "Observations on the Mucous Membrane of the Rectum;" "Pathological Observations," containing "Notices of a congenital Malformation of the Pharynx, which ended, not in the *Œsophagus*, but in a large *cul de sac*;" "Cases of Malformation of the Heart;" and other observations of an equally interesting nature; and in his third communication, that of "An Account of two newly-discovered Muscles for compressing the dorsal Vein of the Penis in Man and other Animals, and also of a similar Provision for compressing the Vein of the Chameleon's Tongue." Each of these papers is accompanied by valuable engravings and lithographs, from drawings made by Dr. Houston himself; but as it would not come within the scope of a memoir of this description to enter at any length into the history of these discoveries, we must refer our readers to the articles themselves.

The accuracy of Dr. Houston's views of the anatomy of the

(a) We know not whether the following fact is generally known to anatomists. The chameleon possesses the power not only of striking with unerring certainty a stationary object, but also of hitting its prey when on the wing. To effect this the animal is possessed of great quickness and perfection of vision. On dissection, it has been found that the entire retina is of a yellow colour, similar to the hue of the *limbus lutea*, or yellow spot of *Scemmering*, in other animals. Is it this yellow colour which endows the creature with its exceedingly quick and accurate sight?

rectum having been called in question, and severely animadverted on, by Dr. O'Beirne, Dr. Houston published some further "Observations on the Form of the Rectum," which were published in our third volume, in 1833.

In 1830 the use of the stethoscope was not only in its infancy in this country, but was by many, even of a high rank in the profession, decried; and about this period a very interesting case occurred, in which its value was tested, of which Dr. Houston has given an account in the fifth volume of our former series (1834), viz.: "A Case in which a large molar Tooth entered and passed through the Larynx during the Operation of Extraction." It caused so very little immediate distress, that many could not bring themselves to acknowledge that a large, double-fanged tooth could find a ready entrance through the rima glottidis, and remain in the trachea, or bronchial tube, without causing symptoms of a more urgent nature than were complained of by the patient. On the other hand, it was urged by the stethoscopists, that the feeble and indistinct respiratory murmur, taken in connexion with the rattle in the lower part of the trachea, while at the same time percussion on the right side elicited a sound equally clear with the left, "indicated the existence of an obstructing body in the right bronchus." Some time after the accident, the subject of it died in hospital, having gone through the various stages of inflammation of the lungs and their investing membranes; and, on dissection, the tooth was found "lying in the right bronchus, about one inch beyond its commencement."

In the *Scientific Intelligence* in the same volume we find an extract of a communication which the subject of this biography made to our Zoological Society, of which he was a most valued member, "On the Diseases of the Animals which died in their Collection."

In the *Edinburgh Medical and Surgical Journal* for 1832, Dr. Houston published an article entitled, "Observations on Natural Phymosis, with a new Operation adapted to its Removal," which, we believe, had formed the subject of his thesis, on graduating, some months before; and in September, 1835, he wrote one of his most valuable Physiological Essays in the twenty-second Number of our former Series, being the substance of a paper read at the British Association, at the time of its meeting here in that year, a period ever memorable in the scientific annals of this city, and one which, we are vain enough to hope, the members of that body will not soon forget. And here we cannot but allude to the warm interest taken in the advancement of the Association during its meeting at Dublin in 1835, by several now no more, among whom we may mention the late Provost Lloyd, Mr. Maclean, Dean of the University, and Dr. Houston. The paper to which we allude, was "On the Peculiarities of the Circulating Organs in diving Animals;" in which, by a series of anatomical investigations, illustrated by many beautiful dissections, he shewed that the property of remaining under water

for a great length of time, in aquatic birds at least, is the result of a peculiar arrangement in the vena cava, and venæ cavæ hepaticæ, which are dilated into large receptacles capable of containing a great quantity of venous blood, enabling these animals to remain under water without the lungs becoming gorged by the venous blood which is retarded in those great reservoirs.

This paper is not only of great interest in a physiological and a zoological point of view, but is of considerable pathological importance, by explaining the phenomena which take place in many of the diseases of the circulating and respiratory organs. At the same meeting of the Association, Dr. Houston made a communication upon the subject of "Hydatids found in the Omentum of an Axis Deer, with Illustrations of their pathological Changes," in which the facts are not only graphically related, but an interesting physiological disquisition on their generation and mode of growth, &c., is included. This paper likewise appeared in our Journal for November, 1835.

One of the most practical surgical papers with which Dr. Houston favoured us, will be found in our eighth volume, the Number for September, 1835, in which we have "A Report of a Case of Fracture of the Pelvis, attended with Sloughing of the Urethra, and singularly extensive urinary Fistulæ, cured by Operation after the lapse of one year and a half," the details of which are exceedingly well worth perusal.

The following catalogue includes all the other scientific communications of any note, and they are neither few nor short, which Dr. Houston published in the periodicals of these kingdoms.

"Observations on Fractures, being the substance of Lectures delivered in the City of Dublin Hospital."—*Dublin Journal of Medical and Chemical Science*, vol. viii. p. 459.

The object of this communication (which is accompanied with an engraving) is to institute a parallel between the flexed and extended positions in the treatment of fractures of the lower extremities; and the author advocates the latter, to effect which he recommends a modification of Desault's splint. This mode of treatment was, however, not confined to Dr. Houston's practice in particular; the extended position is that used in several hospitals in Dublin, and in Steevens' Hospital it was that generally employed from 1832 to 1837. Dr. Houston, who was an exceedingly neat surgeon in all matters of bandaging and the application of mechanical means, deserves, however, great credit, not only for the very valuable original observations, both of a physiological and practical nature, in his paper, but also for bringing forward a mode of practice of great utility, and not much known out of this city.

We would here remark, that as there are many points of practice, both in medicine and surgery, but particularly the latter, and various modes of treatment peculiar to the Dublin School, and as several of these are even peculiar to some of our hospitals, and, con-

sequently, known but to a very limited circle, we should like to see a good practical paper, or series of papers, on the comparison between the practice of the London and Dublin hospitals. It opens a very interesting field for some of our young men intending to pass a season in the great metropolis.

"An Account of a human Fetus without Brain, Heart, or Lungs; with Observations on the Nature and Course of the Circulation in such monsters."—*Dublin Jour. of Med. Science*, vol. x. p. 204. (Originally read before the medical section of the British Association at Bristol.) The subject of this curious malformation was a twin; the other child was perfectly natural, and what adds exceeding interest to this communication is, that the placenta were united, while the circulation in each infant took a diametrically opposite course. To the monster, the blood was conveyed by the umbilical vein, through which it passed to the vena cava abdominalis, and was distributed by the, in this instance, valveless branches of that vessel throughout the body. It was then taken up by the capillaries constituting the roots of the aorta, and conducted thence, by the umbilical arteries, out of the body again. The correctness of these views and conclusions having been questioned by Dr. Marshall Hall, in a Paper in the *Edinburgh Monthly Journal*, Dr. Houston replied (in 1844) in an article:—

"On the Circulation of the Blood in acardiac fœtuses."—*Dublin Journal of Medical Science*, vol. xxiv. p. 337.

In March, 1843, he published—

"An Essay on the Use of Nitric Acid as an Escarotic, in certain Forms of Hæmorrhoidal Affections, illustrated by Cases."—*Dublin Jour. of Med. Science*, vol. xxiii. p. 94; and "Further Observations on the Use of the Nitric Acid as an Escarotic, in vascular Tumours of the Rectum," in vol. xxiv. p. 204.

Both these communications are of great practical importance in the treatment of diseases of the rectum and anus; but it is only justice to Mr. Cusack to say, that he was the first person to employ this remedy in Dublin. Several years before Dr. Houston published his paper, we assisted Mr. Cusack to apply strong nitric acid to piles and other hæmorrhoidal excrescences: and a case-book now lying before us contains the history of a man treated by him after this fashion in Steevens' Hospital, in 1833, with which case we shall furnish our readers in the *Medical Miscellany* of our November Number. We mention these circumstances, not as an accusation against Dr. Houston, who most fairly and honestly acknowledged in his first communication not only the claims of Mr. Cusack, but also explicitly stated that the mode of treatment had originated with that gentleman; but because we know that many award to Dr. Houston the entire merit of the introduction of this operation. Mr. Cusack should have made his professional brethren acquainted with the results of his experience in this matter; and not having done so, we are much indebted to Dr. Houston for bringing the subject forward as he has done.

“Observations on the Treatment of Hare-lip, illustrated by Engravings of two successful Cases.”—*Dublin Jour. of Med. Science*, vol. xxi. p. 165. 1842.

A further communication on the subject was made to the Surgical Society, and published in the *Dublin Medical Press* for April, 1843.

In 1840 Dr. Houston tied successfully the external iliac artery, and published a history of his operation as “A Case of Femoral Aneurism cured by Ligature of the external Iliac Artery (with a Plate).”—*Dublin Jour. of Med. Science*, vol. xxii. p. 209. 1843.

“A Case illustrative of the Means adopted by Nature for the spontaneous Suppression of Hæmorrhage from Laceration of the large Arteries.” (Communicated to the British Association at Cork).—*Dublin Jour. of Med. Science*, vol. xxiv. p. 204. 1843.

Besides these matured essays, Dr. Houston made many interesting communications to the Surgical Society of Ireland, from 1840 to the date of his death, which have been recorded in the proceedings of that body in the *Dublin Medical Press*.

As an instance of Dr. Houston's energy and quickness of observation, we may here allude to the zealous manner in which he applied himself to the study of the microscope a few years ago; so much so that in a very short time he became one of the most astute microscopists in this city. In 1844 he wrote a very original and interesting paper on the “Microscopic Pathology of Cancer.”—*Dublin Medical Press*. And in the same year, “A Lecture on the modern Improvements of Surgery.”—*The Lancet*.

Description of “A new Fracture of the Humerus;” and a “New mode of stopping Leech Bites.”—*Dublin Hospital Gazette*, 1845.

Dr. Houston likewise made some communications to our Pathological Society—a body in which nearly every physician and surgeon of eminence in this city has distinguished himself. These consisted of cases of dry gangrene, and fracture of the pubis, with inflammation of the bladder and urinary fistulæ.

We should also mention that in the *Dublin Philosophical Journal*, of which we gave an account in the Preface to our present series in February last, Dr. Houston published a paper on the “Eye of the Chameleon.”

A glance at this long list of communications shews at once the industry of the subject of this memoir, and also the originality and the practical nature of his investigations. Dr. Houston was not only a ready, but a very clear and graphic writer.

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PART I.
ORIGINAL COMMUNICATIONS.

ART. VII.—*Remarks on Chlorosis and Hæmorrhage.* By SIR HENRY MARSH, Bart., M.D., President of the College of Physicians, Physician in Ordinary to the Queen in Ireland, &c.; being Extracts from Observations made on Cases in Steevens' Hospital during the Winter Session of 1845-6. Reported by JOHN HILL, A. M., M. B.

THE following general remarks on chlorosis and hæmorrhage were suggested by some cases of these diseases which were treated in the medical wards of Steevens' Hospital during the last session.

Chlorosis is an affection of frequent occurrence and great interest; and though it has been repeatedly investigated by several distinguished pathologists, many points of considerable importance in its history yet remain to be explored and explained. We shall retain the name chlorosis as, perhaps, the best we can adopt; it is, doubtless, one derived from a symptom, yet a symptom so invariably present that it suffi-

ciently designates the disease. This is not the only instance in which we deem it necessary or convenient to employ the name of a symptom, as expressive of the disease which gives rise to it; we may cite, for example, jaundice, dropsy, and paralysis. It is sometimes better to retain even an objectionable word than to encumber science with new and often uncouth terms. We shall not speak of chlorosis as synonymous with anæmia; the former refers to a specific disease, the latter bespeaks a state of the system, either general or local, which may arise during the progress of several diseases; it was introduced into our vocabulary by the eminent physician Andral, and (though not etymologically correct), is too useful and convenient a term to be parted with. There are many cases of chlorosis marked rather by an increase than a diminution of the total amount of the circulating fluid. In chlorosis there is a change in the quality, but not necessarily a change in the quantity, of the blood; so that chlorosis must be looked upon as a peculiar and distinct disease, and not identical with anæmia. In like manner hyperæmia is a convenient term to express a surplus of blood, generally or locally, but it is not expressive of any particular disease; and in speaking of hæmorrhage in contrast with chlorosis, as we propose to do, it is necessary to draw a marked line of distinction between hæmorrhage—which sometimes arises even when general anæmia exists—and the state of hyperæmia.

It has been already remarked that there is no proof of deficiency of blood in chlorosis; on the contrary, there is strong presumptive evidence that an actual excess of blood, though of inferior quality, characterizes some cases of the disease; and it is worthy of remark that, in the treatment of chlorosis, the moderate abstraction of blood by the lancet, by leeches, or by cupping, not only does not aggravate the symptoms, but, so far from this, when incidental affections demand depletion, is followed by the best effects. The disease in reality consists, not in a diminished quantity of blood, but

in an altered quality—a diminished consistency of this fluid; herein lies its very essence, and any term which signifies the former, not the latter condition, is at least objectionable as applied to chlorosis. In chlorosis the blood undergoes a very remarkable change; its specific gravity is lowered; the clot is small and firm; the serum bears too large a proportion to the crassamentum; water is in excess; the red corpuscles are far below the healthy standard in quantity; their appearance, however, under the microscope, is natural: and the fibrin, in the majority of cases, is normal in quantity, firmness, and cohesive power.

In hæmorrhagic diseases, the chemical and physical characters of the blood are very different. Its specific gravity is seldom much below, and occasionally even exceeds the healthy standard; the separation into clot and serum is imperfect, and the clot bears too large a proportion to the serum; the quantity of fibrin is less than in healthy blood, or, at least, its proportion to the red corpuscles is less than is found in a state of health; the quantity of red corpuscles is either absolutely increased, or their proportion to the fibrin is larger than in healthy blood; and the quantity of solid constituents frequently exceeds that of the normal fluid. The clot is, in general, large, soft, and of a dark red, or almost black colour; sometimes the formation of a clot does not take place; a buffy coat is scarcely ever observed, except when fever or inflammation is present; and the serum is frequently tinged with red by the presence of red corpuscles in suspension. Under the microscope, the red corpuscles are most commonly seen of small size, with their edges lacerated and irregular; mingled with these are numerous shrivelled, apparently empty, colourless cells, the walls of which are of extreme delicacy.

These facts respecting the characters of the blood in chlorosis and hæmorrhage are established by the well-conducted experiments and accurate analyses of Andral, Gavarret, Denis, Lecanu, Simon, and others; and have been corroborated by

numerous observations made in the hospital by Dr. Hill, under my own superintendence.

The following briefly noted cases will, on comparison with each other, serve to illustrate the distinguishing characters of chlorosis and hæmorrhage.

Mary Callaghan, aged 17, a domestic servant, of middle stature, spare habit, and chlorotic appearance, was admitted into Steevens' Hospital, August 2, 1845. The integuments are of a sickly white, waxy hue, with a slight tinge of yellow on those parts which are most exposed to light. The extremities are habitually cold and moist, especially the feet, which, she says, are never warm. She complains chiefly of constant frontal headach; pain, with tenderness on pressure in the hypogastric region, chilliness, languor, and weakness in the back. The tongue is pale and moist, the appetite delicate, nausea frequent, and bowels always confined. Respiration performed twenty times in a minute; no cough nor pain in either side, and the respiratory sounds healthy. Pulse 96, feeble; heart's action tranquil whilst she is at rest, but any sudden exertion or emotion produces violent palpitation. The first sound of the heart is accompanied by a loud, rough *bruit*, which varies much in intensity at different periods, and under different circumstances of excitement, but has been present, more or less, at every examination. There is no evidence of hypertrophy of the heart, nor can any murmur be detected in the arteries or veins. There has been no appearance of the menstrual discharge for the last eight months, previously to which time it was always regular, and she is unable to account for its cessation. She has never suffered from leucorrhœa, nor observed any tendency to œdema in any part of the body.

Urine is passed in natural quantity; is of pale, limpid appearance; specific gravity at 64° Fah., 1008; faintly reddens litmus paper, and is free from albumen. She states that, notwithstanding the derangement of the uterine functions, she

enjoyed tolerable health until four months since, when she began to suffer from headach, nausea, and general debility. Four ounces of blood were taken from the arm, and the following observations made :

Temperature of atmosphere,	64°	Fah.
„ under the tongue,	100°	„
„ in the axilla,	95°	„
„ of blood as it flowed,	97·5°	„
Specific gravity of blood at 75°, Fah.	1·031.	
Specific gravity of serum at 64°, Fah.	1·025.	

In 1031 grains of blood,

The weight of serum was 760 grains.

The weight of the clot, 271 „

being in these proportions of 1000 to 356·5. These proportions were taken twelve hours after venesection.

The blood, when flowing, seemed nearly as thin as water, and was of a bright florid colour, resembling that of arterial blood. The clot was very small, firm, of a dark reddish brown colour, and without any appearance of buffy coat. The serum was transparent and colourless. Under the microscope the characters of the red corpuscles were normal.

P. Conolly, aged 22, a weaver, of spare habit, but florid complexion, was admitted into Steevens' Hospital July 17th, 1845. The entire surface of the body, excepting that of the face, hands, and feet, is thickly covered with brownish red petechiæ, mingled here and there with small, more deeply seated, and dark coloured ecchymoses. At the upper part of the forehead are several broad red patches, covered with furfuraceous scales. The gums are soft, spongy, of a purple colour near their junction with the teeth, and bleed freely whenever he masticates any hard substance. The tongue is clean and red; no petechiæ are observed within the mouth. He is very subject to epistaxis, a severe attack of which, two days ago, induced him to apply for admission into hospital. His appetite is good, and his bowels usually regular,

but at present they are confined ; in other respects his general health appears unaffected. Pulse 76 ; heart's sounds normal. Respiration 18 in the minute. He states that, during his childhood, he was occasionally subject to epistaxis, and that, about seven years ago, he first observed a number of small red spots upon his arms, which he, at that time, mistook for flea-bites ; these spread in successive crops all over his body, and shortly afterwards he became subject to frequent hæmorrhage from the nose, gums, and bowels. He says that the spots fade and die away sometimes, but that, ever since their first appearance, he does not remember having been totally free from them for more than a few weeks at a time. Previously to the commencement of the disease he was in very distressed circumstances ; of late years, however, he has been able to earn a comfortable subsistence. Four ounces of blood were taken from the arm :

Temperature of the atmosphere,	63°	Fah.
„ under the tongue,	97°	„
„ of blood as it flowed,	98°	„
Specific gravity of blood at 64°, Fah.	1·054	
„ of serum at 64°, „	1·027	

In 1054 grains of blood,

The weight of serum was, 238 grains.

The weight of the clot, 816 „

being in the proportion of 1000 to 3428·5. These proportions were taken twelve hours after venesection. The blood, as it escaped from the vein, appeared thin, and was of a florid red colour. The clot was very large, soft, black, and soluble in water. The serum held a great number of red corpuscles in suspension. Under a high magnifying power, the recent blood exhibited a great number of ruptured corpuscles ; their general size was, however, normal. In a drop of the tinged serum were seen numerous red corpuscles, of which about one-fourth were of natural size and appearance ; another fourth were of natural size, but with lacerated edges and irregular surfaces ;

whilst the remaining two-fourths were of small size, not exceeding the dimensions of the central nucleus of a normally-sized red corpuscle. There were, in addition, numerous thin, membranous cells, empty and corrugated, floating in the serum.

These cases exhibit in strong contrast the characters of the blood in the chlorotic and hæmorrhagic conditions. They are extreme cases, and are given as such; in other instances which we have examined were observed degrees of contrast, from the minutest shade of difference to the extreme amount now portrayed. The most striking distinctive character is in the specific gravity of the blood; in the chlorotic case it was 1031; in the hæmorrhagic case 1054; but there are other remarkable differences, and these are at once recognized by a reference to the examination made. We do not profess to give a minute chemical analysis of the blood; our object is to mark the prominent and distinctive characters in each condition of the blood, and thence we hope to arrive at useful practical deductions.

From the pathological state of the blood which characterizes chlorosis, many interesting phenomena spring: upon these, in succession, we shall make a few observations and practical remarks.

The first important symptom which we shall notice, as a consequence of this imperfect sanguification—this deficiency of the red corpuscles—is the low degree of animal heat. Well-marked chlorosis is distinguished by an universal chilliness; the extremities are, in many cases, insuperably cold; and scarcely are they warmed by exercise or artificial heat till (the loss by radiation and evaporation not being supplied by the blood) they again become destitute of animal heat. Even in bed this coldness of the extremities remains for hours, and prevents sleep. Sometimes they are deadly pale and dry; at other times swollen, livid, and clammy; but in either case they are characterized by a very low degree of temperature. The

whole condition of a chlorotic patient in many respects resembles that of a cold-blooded animal. There exists also a marked incapability to bear extreme ranges of atmospheric temperature. So long as the blood continues in the deteriorated state which constitutes the essence of this affection, the individual ceases to possess that power of adaptation to climatic extremes which distinguishes the human race. To such persons summer heats and winter colds are distressing and intolerable; they thrive best in a dry, invigorating, and moderately warm atmosphere; and their sufferings would be much mitigated were the air they breathe always of an uniform and medium temperature. In the treatment of chlorosis much advantage is derivable from remedies capable of supplying this deficiency of animal heat: for example, from warm pediluvia, frictions, shower baths, and such covering of the body as shall not debilitate, and yet prevent the too rapid escape of caloric by evaporation and radiation; but above all, from well regulated exercise, both equestrian and pedestrian, not exceeding the then existing physical powers, but gradually augmented as these powers by habituation acquire force. To these should be added, when practicable, travelling and daily quick transitions through the air, as in an open carriage, so as to stimulate the lungs, and improve the respiratory and circulating functions.

The importance of this mode of treatment is shewn by the following observations, quoted from Simon's *Animal Chemistry*: "When there is a paucity of corpuscles, the necessity for the absorption of oxygen is diminished in a corresponding ratio, the circulation becomes slower, and there is less heat developed than in the normal state; on the other hand, blood with an excess of corpuscles, but which is circulated slowly, develops less heat than blood which contains a smaller proportion of corpuscles, but which is more rapidly circulated, for more oxygen may be consumed in the latter than in the former case."

The production of animal heat is unquestionably much

influenced by the rapidity of the circulation, as well as by the quantity of blood corpuscles. Of this we may convince ourselves by a reference to the researches of Prevost and Dumas on the relation between the mass of corpuscles and the temperature in various animals. For instance, in the goat the amount of blood corpuscles is considerably less than in man; but the temperature of the former exceeds by four or five degrees that of the latter. This may be accounted for by the fact that, in the goat, the pulse is, by ten or twelve beats in the minute, quicker; and respiration, by six in the minute, more frequent, than in the human subject.

Becquerel and Breschet have also ascertained, by means of a thermo-electric multiplier, that each contraction of a muscle is accompanied by an elevation of temperature amounting in some instances to 2.6° . In this manner we may, perhaps, account for a portion of the increased temperature that succeeds active exercise.

When the blood has undergone the morbid changes described, when the red corpuscles are deficient and animal heat imperfectly supplied, it follows as a necessary consequence that the nervous and muscular systems, being supplied with deteriorated blood, should exhibit in their functions a corresponding degree of depression. If this be closely investigated, and due allowance made for the different degrees of activity which belong constitutionally to different individuals, it will appear that, in every real case of this disease, there is a varying amount of energy abstracted from the brain, nerves, and muscles, and indicated by languor of mind and lassitude of body. To form a correct estimate it must be founded on a comparison of what the individual had been in health, and now is when labouring under chlorosis. In the severer and more advanced forms of the disease the contrast is most striking.

There are two remarkable symptoms which, to a greater or less extent, are, I believe, always present in chlorosis, namely, palpitation of the heart and dyspnœa, on making ex-

ertions such as in health would be utterly incapable of producing these effects. In many cases the palpitations produced by ascending even a few steps of stairs are exceedingly distressing; in some instances the dyspnœa is the more urgent symptom; they are, however, generally found to co-exist and to be caused by very slight muscular exertions and mental emotions. The varied disturbances of the heart's action constitute a very prominent symptom; nor is this opposed to what we might anticipate when we consider how much altered are the constituents, and consequently the stimulus, of the circulating fluid. We also find that the pulse is often quick, small, and weak; for, though the contractions of the heart occur in rapid succession, the blood-wave propelled at each systole is diminished and powerless. In an early stage of the disease, when the patient is quiescent, the pulmonary and cardiac motions are tranquilly and often languidly performed; the heart and lungs, however, partaking of the general enfeeblement, and receiving and circulating an impoverished blood, exhibit signs of hurried action and disturbance when even a very slight amount of augmented labour is exacted from them. But when the chlorotic affection is further advanced, when the general torpor is increased, and the blood reduced to a very low degree of attenuation, then the breathing and the pulse become permanently disturbed and quickened.

To the same sources may be referred the derangement of the assimilative function—the diminished appetite, the slow performance of digestion, and the inactivity of the intestines. The constipated state of the bowels is a very constant symptom; it has even been asserted that purgatives alone are capable of curing the disease. That they are in many cases useful, often highly so, experience has fully established; the assertion that they are to be solely relied upon, all experience contradicts. In a very large proportion of cases the first curative step is to evacuate thoroughly the intestinal canal; and to effect this purpose such medicines should be employed, assisted by ene-

mata, as will insure sufficient action of the bowels without depressing the vital powers. Cases of chlorosis occasionally occur in which diarrhœa, or a tendency to it, prevails; these, however, are exceptions to a general rule, and may be traced, in the majority of instances, to constitutional predisposition, to unwholesome, indigestible food, or to atmospheric vicissitudes. Diarrhœa is not properly a symptom of the disease. The more the respiratory functions and the condition of the blood are improved by appropriate treatment, the more certainly will the appetite and intestinal actions be approximated to the normal state. The diet best suited to a chlorotic patient merits consideration. The appetite and digestive powers being enfeebled, it is necessary that the quantity consumed at each meal should not exceed the assimilating powers of the stomach; the food should be well masticated, and consist in articles of diet most highly nutritive. In some there is a distaste to solid animal food; then the substitutes provided should contain in small bulk as much nutritive matter as possible, that thus the object in view—to enrich the blood without overloading the stomach—may be attained. When the stomach can receive and digest them, tender, old, and gravy meats, and game, claim a preference. In regulating the diet of the chlorotic patient, much stress should be laid upon the necessity of supplying animal heat more abundantly. It should then be the opposite of that which in tropical climates is provided by nature, and more in accordance with that used in cold climates; hence articles of food abounding in carbon, such as butter, cream, oil, and fat, should be mingled with the daily food, in quantities not exceeding that which the stomach is fully capable of digesting. For the same reason, unless forbidden by some constitutional peculiarity, good wine, and brandy and water, should be liberally allowed; porter and ale suit some individuals better, and attain the same object. These are the cases in which I have seen the most decided advantage from brandy and new milk taken early in the morning;

in many such cases too the *Oleum Jecoris Aselli* has been particularly beneficial. The diet then in chlorosis should be so regulated that, without oppressing the stomach, the blood may be enriched and animal heat promoted.

In this disease, characterized as it is by a general depression of the vital functions, the wasting of the body is slow; may we not then justly conclude that the activity of the absorbent system is also diminished? and when emaciation does occur, may it not arise more from deficient deposition than from increased absorption? Assuredly in the early stages of this affection, there is scarcely a perceptible amount of emaciation; and it is not until the disease be advanced that this symptom becomes apparent. I have often been struck with the plumpness of those who exhibited unequivocal evidence of the presence of chlorosis, though the same torpor which pervaded the whole system had affected likewise the nutritive function.

The urine in chlorosis possesses distinctive properties of considerable interest: it is usually pale, of low specific gravity, and of a mildly acid reaction; it contains, according to the analyses of Becquerel, a large amount of fixed salts, a small quantity of uric acid, and a very small proportion of urea; the diminution of the urea being both absolute and relative, and always keeping pace with the deficiency of red corpuscles in the blood. The difference between this condition of the urine and that which prevails during the occurrence of hæmorrhage is very striking, and shall be hereafter noticed.

From the general torpor the uterine functions are not exempted; their derangement has been frequently and confidently put forward as the real and efficient cause of this disease, with what amount of truth facts must determine. This opinion derives support from the following considerations: that chlorosis is especially a feminine disorder; that its origin is often attributed by the patient to a sudden suppression of the catamenia; and that the period of its most frequent occurrence is that of puberty—the period immediately antecedent

and subsequent to the establishment of the menstrual discharge. But it must be remembered that this is also the period of the completion of growth: as this period approaches, the various systems undergo rapid development, and then it is, or soon afterwards, that this characteristic pathological state of the blood most frequently arises. To me it has often appeared that chlorosis has a more intimate relation with that epoch of life when the frame has nearly reached its full development, than with the uterine functions. Be that as it may, much stress has been laid upon menstruation, and the derangement of this function has been fixed upon by many as the starting point of the disease.

To what extent do facts and observations sustain this opinion?

In the first place chlorosis is by no means limited to the female sex; and in the next, it may with truth be stated that, in a large proportion of cases, the uterine is not more disturbed than any other vital function; the patient menstruates regularly, but less abundantly than in health, and the fluid excreted is, like the blood, deficient in red corpuscles, and hence in colour less deep. This is the only disturbance of uterine function observable in a considerable proportion of cases of chlorosis; and if the cases be carefully investigated, in which the menses are irregular or suppressed, it will often be found that there existed constitutionally or hereditarily a disposition to irregularity or suppression of the monthly discharge. When, however, the disease is far advanced, or extreme in degree, and every vital function impaired, it most commonly happens that this function partakes of the general depression, and either recurs in extremely diminished quantity, and at irregular periods, or altogether ceases. Numerous observations which I have made on this subject lead me to the conclusion, that the irregularity, diminution, and cessation of the uterine function, are the effect, not the cause, of the disease. The de-

rangement of the menses can only be removed by the removal of its cause; the treatment, therefore, best calculated to restore the blood to its normal state is that best suited to the restoration of the healthy uterine action. I have seen cases of this affection treated with no other view than that of reproducing the menstrual discharge, and the treatment has been unsuccessful, because based on an erroneous principle. There is, in many cases of chlorosis, a profuse and wasting leucorrhœa; this symptom has also been seized upon and announced as a cause; yet this too is a consequence, and probably connected with the excess of serum in the blood; like any other prominent symptom, however, arising during the progress of a prolonged disease, it merits especial attention, and requires appropriate local treatment. It is not always safe suddenly and completely to suppress this discharge; it should be moderately checked, whilst the treatment which tends to remove the original disease is steadily employed. It may here be remarked that, in chlorosis, sanguineous exudations are comparatively rare, whilst serous exudations—vaginal, intestinal, pleuritic, peritonæal, cerebral, and subcutaneous, are by no means uncommon. In the management of these affections, whilst local treatment is essentially necessary, the leading object should be to alter and improve the condition of the blood itself. The contrast between the two states, that of chlorosis and that of hæmorrhage, is herein strongly marked; menorrhagia is rare, leucorrhœa by no means uncommon.

Of the characteristic symptoms of chlorosis there is not one more strikingly apparent than the well-known change of colour and complexion by which this disease is recognized. It is not mere pallor, for many healthy persons are extremely pale, it is a morbid aspect—a peculiar greenish yellow tint, familiar to the observant eye, and best expressed in the appearance of the skin after a bruise or ecchymosis, when, absorption being nearly completed, a slight greenish yellow discoloration

of the skin remains for several days. It is this hue of the integuments which has given origin to the popular name of the disease, "the green sickness." The peculiar complexion of chlorosis depends upon the diminished proportion of red corpuscles in the blood circulating in the capillary system; as the result of which a yellow tint is imparted to the skin, either from the colouring matter of the liquor sanguinis, termed hæmaphæin, or as the direct consequence of the smaller number of red corpuscles in the vessels; since it is well known to microscopical observers that the colour of an isolated corpuscle is yellow, and that it is only when aggregated in considerable numbers that they appear red. The change of colour above described is not confined to the external skin, the mucous membranes also, though in a less evident degree, participate in the pale and bloodless hue caused by the paucity of the red corpuscles in the capillary vessels.

Having now enumerated what may be termed the essential symptoms of chlorosis—the depression of animal heat, the prostration of the cerebral, nervous, muscular, cardiac, pulmonary, intestinal, and uterine functions, together with the characteristic hue of the tegumentary membranes—it remains to make a few remarks upon other symptoms, some of frequent, others of occasional occurrence, which, though they belong not of necessity to the disease, are nevertheless so apt to arise during its progress, that to omit them would be to leave the history of this affection altogether incomplete.

The history of diseases would be much simplified were the complications, in the order of their frequency, carefully distinguished from the essential symptoms. These complications perplex and prolong the treatment, which, but for them, would be simple, easy, and certain. There are few diseases more completely under the control of remedies than uncomplicated chlorosis. Of the complications there is none more frequent, none more disturbing to the regular course of treatment, than the various neuralgic affections and local pains with which many chlorotic

patients are afflicted. There is an intimate connexion between chlorosis and hysteria;—none are more disposed to become chlorotic than those who are hereditarily or constitutionally predisposed to hysteria. I have seen, during the progress of this affection every variety of hysteric symptoms to arise; I have also seen it complicated with chorea. Nearly allied to hysteria, if not identical with it, are those spinal tendernesses and irritations which propagate pains to every part of the body. These neuralgic pains are oftentimes so severe that the lives of chlorotic patients are rendered miserable by them; and so harassing that every other feeling and consideration is absorbed in unceasing solicitude for their removal or mitigation.

Many individuals suffer from intense frontal headach, either constant or periodical, from acute pain in one or other of the sides, in the epigastric or hypochondriac regions, and sometimes even in the extremities. In such cases the treatment must be complex; yet whilst the leading object—the amelioration of the condition of the blood—should never be lost sight of, the means best calculated to mitigate and remove the neuralgic complication must not be omitted. In some cases, particularly those in which there exists in some part of the spinal column much pain on pressure, with strongly marked evidences of spinal irritation, it may be necessary to detract blood either by cupping or by leeches. Care, however, must be taken that the quantity of blood drawn should be small; leeches should not be too numerously applied, nor a prolonged bleeding from the bites encouraged. The operation of cupping has, in this respect, a great advantage, that there is no after bleeding, and when it can be quickly and dexterously performed it is a superior remedy. I have seen chlorotic patients permanently injured by profuse local bleeding. In general the frequently repeated application of small blisters on either side of the spine is the preferable mode of treatment. In many cases of spinal irritation the pain and tenderness on pressure is found

to exist, not along the line of the spinous processes, but on one or both sides of this line. Moderate pustulation is sometimes more effectual than blisters. For the removal of neuralgia, anodynes, particularly opium, should be sparingly and cautiously given. If it constipate the bowels and diminish the secretions, temporary relief will be often purchased at a dear price. Opium too, by prostrating the nervous energy, injures the respiratory function, and thus adds to the existing imperfection of the blood. It may be necessary to give an opiate—a night's unbroken rest may not be otherwise attainable; it should, however, be looked upon as a thing of necessity, and should, if possible, in chlorosis be avoided. I have occasionally observed marked advantage from small doses of aconite, and in one case of chlorosis with severe facial neuralgia, a great mitigation of pain was effected by a single dose of the *canabis indica*. All these potent agents, however, which lower the vital energies, are ill-suited to a disease, the characteristic of which is to depress, below the normal standard, every function necessary to the maintenance of life. They should be employed cautiously; and should not be long persevered in. The local application of anodynes and sedatives is oftentimes more safe, and in efficacy not inferior to their internal administration. Lint soaked in anodyne lotions, placed upon the painful parts, and overlaid with oiled silk, is in many instances a remedy of value: so likewise is their application over a blistered surface, the cuticle having been removed. The ointment of the sulphate of veratrine (a scruple to an ounce of axunge) I have found particularly efficacious. The neuralgic pain is sometimes, but not often, removed, by lightly touching the adjacent skin with heated iron. In all these complications, the first object must be to improve the blood, the second, to remove the neuralgic pains.

Amongst the nervous disturbances to which the chlorotic state is liable, I am disposed to class a very remarkable symptom, one by no means uniformly present, but yet so frequent as

to demand a distinct consideration. That to which I refer is the variety of abnormal sounds which accompany the action of the heart and arteries. These sounds vary: sometimes the systolic sound is a sudden, loud, sharp sound; at other times it is rough and harsh; sometimes it is best represented by the quick transit of a whip through the air; more frequently it is the bellows-sound or murmur which reaches the ear. This murmur is not confined to the heart; it extends along the arteries, and the transmission of the blood through the veins is not always effected silently, a peculiar and remarkable sound being heard in some of the larger venous trunks. These abnormal sounds are not the result of organic disease, but arise solely from disturbance of function. This is an interesting and important phenomenon: important, because it establishes the fact, that sounds so frequently characteristic of valvular disease, may and do originate in mere functional disturbance.

As a more distinct and comprehensive account of these sounds, and the circumstances under which they arise, is nowhere to be found than in Dr. Latham's valuable lectures, I shall quote at full length his clear and emphatic description of the phenomenon, though I do not entirely agree with him in the explanation which he has given of it. After having dwelt upon endocardial murmurs as the result of mechanical impediments to the circulation, he says:

“ Certain endocardial murmurs yet remain to be noticed, which are quite distinct, pathologically, from all these. Synchronous with the systole of the ventricles, audible in the præcordial region, and extensively diffused through the arteries, resembling the bellows-sound, and so having the commonest quality of endocardial murmurs, not distinguishable by the ear from those which proceed from mechanical impediment to the passage of the blood, yet themselves springing from a different cause, they form a class by themselves, and a most important class it is. I allude to the cases in which there is an unnatural sound, both endocardial and arterial, and yet no change

of structure in the heart and arteries, but a change in the relative proportions of the constituent elements of the blood. The one general fact with which the sound is constantly associated is an impoverishment of the blood, or the state in which its red globules are deficient, and its serum is in excess. Now this impoverishment of the blood would seem to stand to the endocardial murmur in the relation of a cause, from observation of their constant coincidence merely; and much more so from the observation that upon the removal of the first the second always ceases. In proportion as, under proper treatment, the blood becomes richer, and is made to abound more in red globules, the murmur waxes fainter and fainter in the heart and arteries, until it is finally altogether inaudible in both. But if this endocardial and arterial murmur be really owing to an impoverished state of the blood, one would expect to find that the simple abstraction of the blood to a large amount would produce it at any time in a healthy person. And so it will. We are not, indeed, accustomed thus to bleed healthy persons purely for the sake of experiment: but healthy persons sometimes become the subject of such treatment in the case of accident and injuries, and in the first access of acute inflammation; and then we take advantage of the occasion for learning the effect of the experiment beyond the purpose for which it was instituted. And so we find that if in a healthy man we carry bleeding far enough to blanch the surface of the body, we create an audible systolic murmur in the præcordial region, and diffuse it through the arteries.

“Now this murmur is prominently characteristic of certain forms of disease; and, knowing how we can produce it at will, we should expect to find nature producing it exactly or nearly in the same way. Profuse or protracted menorrhagia, by the time it has blanched the skin, has this murmur for its sure accompaniment. Here is direct loss of blood. Chlorotic anæmia has the same. Here is no direct loss of blood, but, what is tantamount to it, a defect or failure of the assimilatory

functions, whence the mass of blood is not replenished in due proportion to its expenditure upon the uses of the economy. Generally accompanying the endocardial and arterial murmur, when it is owing to anæmia or an impoverished blood, there is another sound quite different in kind, and formed neither in the heart nor in the arteries, but traceable to the same pathological condition. In following the murmur from the heart along the aorta and subclavian artery, and then above the clavicle, when you reach the carotid you find a new sound superadded to it. You perceive the bellows-murmur coming and going with distinct whiffs, and keeping time with the systole of the heart in the neck as in the chest; but in the neck you perceive, moreover, a *continuous hum*, like that which reaches the ear from the hollow of a marine shell. This is a thing so evident that it was noticed and described, and variously speculated upon, by those who first practised auscultation. But their speculations were wide of the mark. Whence or how it arose no one could tell, until the sagacity of Dr. Ogier Ward traced it to the veins, and shewed it to proceed from the movement of the blood within them. The vein which offers itself most readily to the application of the stethoscope, and admits all the easy experiments which serve to certify the fact, is the internal jugular. Place the instrument on the neck, by the side of the trachea, and pretty close to it, and at the same time rest your finger upon the space between the angle of the jaw and the mastoid process; and when your ear has caught a continuous humming sound, and listened for a while and made sure of it, then press your finger firmly down upon the vein, and the sound, if it be the true venous murmur, will immediately cease; then raise your finger, and, if it be the true venous murmur, it will immediately return. A little management and address are needed to find this venous murmur, and then keep it within hearing when you have found it. I have seen it found by accident, heard for a minute, and then lost and never heard again. The instrument has been laid

carelessly upon the neck and the murmur has been audible immediately; and then, in expectation of making it heard to more advantage, the neck has been put upon the stretch, the chin raised and the head thrown back, or turned far round to the opposite side, whereupon the murmur has ceased; then the neck has been relaxed, the head brought forward, and the chin inclined towards the sternum, but the murmur has not returned. The truth is, a very free current of blood is essential to the production of the venous murmur. A slight degree of pressure upon the vein will alter its character, and pressure very far short of that which would arrest the current of blood will abolish it altogether. And thus the neck being put upon the stretch, the muscles which lie parallel with the vein and across it are made to exercise pressure enough upon it to interfere with the free current of blood, and to stop the sound; or, the neck being relaxed, the veins and the integuments get folded together, and so pressure is produced in another way, and this equally stops the sound. Try different degrees of pressure upon the internal jugular vein with the stethoscope when this venous murmur is distinctly audible, and you will find how lightly you must hold the instrument to keep it constantly within hearing, how inconsiderable an amount of pressure will obliterate it, and how each degree short of that which obliterates it will give it sundry varieties, and make it musical. Now these murmurs, whether appertaining to the heart and arteries or to the veins, which have their origin in the quality of the blood that circulates within them, furnish an eminent example of the highest degree of comprehensiveness, both for knowledge and for use, which can belong to the idea of a symptom.

“Where these murmurs are, there a countless variety of other symptoms is found in company with them, pointing to all organs of the body, and giving notice that the functions of all are going wrong; the surface pale and cold, palpitation and dyspnoea, appetite perverse, digestion imperfect, nutrition

insufficient, secretions scanty and unhealthy, pain everywhere, and a shattered nervous system and an enfeebled brain. Such a portentous crowd of symptoms strikes the observation at once. But what they all mean we cannot tell, until we take one single symptom for their sole and sufficient interpreter. The murmur which is at the same time endocardial and arterial and venous is comprehensive of them all, and includes the knowledge of them all, inasmuch as it points directly to their one common source, even the impoverished blood. And further, this same murmur not only contains the knowledge of all the rest, but it is the single representative of them all as an indication of treatment. Standing, as it does, for the sign of impoverished blood, we treat what it denotes and nothing else. But in so doing we treat inclusively every error of function throughout the body which proceeds from it."

Such is Dr. Latham's lucid description of the nature and cause of these abnormal sounds. Are we, however, borne out by observation in ascribing them exclusively to the impoverished state of the blood? I do not think so. If this be the sole and true explanation, why does it happen that there are so many cases of chlorosis, in which the specific gravity of the blood is so low as 1.035,—cases which we have examined with the utmost attention, both in the quiescent and excited states,—in which this symptom is totally absent? Why is it that this symptom is not more uniformly present? Why do we find it to-day, and lose it to-morrow? Why do mental emotions and sudden exertions produce it? Why is it occasionally present in hysteric patients not labouring under chlorosis? and why is it that this symptom does not manifest itself in cases of profuse hæmorrhage which are slow and gradual, whilst it does, though not uniformly, in cases of rapid and profuse bleeding? Would it not appear from these considerations that these abnormal sounds are, in a considerable degree, dependent upon disturbance of the nervous function of the heart and arteries in excitable and hysteric constitutions? Doubtless the attenua-

tion of the blood, both in chlorosis and profuse hæmorrhage, strongly predisposes to the production of these sounds; but their immediate exciting cause is referable to nervous disturbances; so that, to give rise to this symptom, the contractions of the heart and arteries must, from causes connected with the nervous system, be imperfect and irregular. Hence the blood is propelled in broken streams, after the manner so faithfully described by Dr. Corrigan; and although an attenuated state of the blood renders this more likely to happen, yet that condition alone will not explain the phenomenon. In reference to the subsidence of morbid sound keeping pace with the improvement in the quality of the blood, it should be borne in mind, that the treatment which most effectually enriches the blood does also as effectually restore tone and healthy action to the nerves.

Chlorotic patients are liable to various incidental affections of the lungs. Acute bronchitis and acute pneumonia are not of very common occurrence; nor is bronchial hæmorrhage, or pulmonary apoplexy. These are more likely to occur in cases of anæmia produced by antecedent hæmorrhage or wasting disease, than in true chlorosis. I have, however, occasionally seen chlorosis complicated with circumscribed chronic pneumonia, and frequently with chronic bronchitis, terminating ultimately and remotely in tubercular phthisis. In this affection, therefore, a prolonged and intractable bronchitis is a formidable symptom. Nevertheless, when I compare the number of chlorotic cases ending in phthisis, with the number of hæmorrhagic cases ending in the same disease,—judging from my own sphere of observation,—I find the latter greatly to exceed the former. I may further add, that, in the prophylactic treatment of phthisis, considerable modification is requisite; inasmuch as that which is best calculated to prevent the chlorotic, is not, in all its details, equally suitable to what may be termed the hæmoptysical phthisis. I

have seen a few cases of chlorosis complicated, some with periodic, others with irregular spasmodic asthma.

Chlorotic patients are also subject to a very great variety of incidental disturbances and perversions of the digestive function, which, in some cases, throw serious obstacles in the way of treatment, and render it more tedious and difficult. Of these, one of the most frequent is the distention of the stomach which arises after meals, no matter how simple and easy of digestion the food may be. In many instances we meet with most distressing gastric and intestinal flatulence; not such as results from mere indigestion, but a copious and continual secretion of gas, similar to that which we so frequently find to arise in hysteric patients. This symptom is sometimes accompanied with a constant noise and motion of the intestines; a rumbling so loud as to be audible to those around, and exceedingly distressing to the patient. The gas, pent up by irregular contractions of the intestines, is the cause of severe and sharp pains, not only in the abdomen, but in remote situations. It is often the sole cause of intense pains in various parts of the chest, shoulders, sides, and also along the limbs; pains which are at once removed by any medicine which has the effect of expelling or even displacing the confined air. In such cases a portion of the intestine may be observed to swell, and thus form a large, circumscribed, tympanitic tumour. These symptoms are greatly relieved by warm, cordial cathartics; by stimulating frictions and rubefacient applications, such as mustard or turpentine, over the abdomen; and by small, frequently repeated doses of the rectified spirit of turpentine internally. A drop or two of creasote, in a pill to be taken thrice daily, is often exceedingly useful when given in conjunction with the compound galbanum pill. Galbanum itself, in full doses, is in some cases a most effective remedy. I have also seen marked advantage to arise from newly-burned and finely pulverised carbon; the charcoal derived from box-

wood is, I think, the best; and the less the powdered charcoal is exposed to the air the more efficient it is. The following powder has proved itself, in many instances a remedy of value: Of freshly burned charcoal reduced to fine powder, a scruple; calcined magnesia, ten grains; powdered nutmeg, five grains. Mix. To be blended with a little milk first; then a sufficiency of water or milk added to suspend the powder, so that it may be easily taken. It may be repeated two or three times daily. Should the bowels be disposed to relaxation, powdered crabs' claws or precipitated chalk may be substituted for the magnesia. I have known chlorotic patients, who had been greatly harassed by these incessant gaseous secretions,—after every variety of treatment, and the most careful regulation of diet had failed to procure more than temporary alleviation,—ultimately and completely cured by travelling and repeatedly changing the air. Amongst the occasional symptoms which complicate chlorosis we meet with instances of an extraordinary perversion of appetite. Those so affected are very unmanageable patients. As this symptom, however, belongs more properly to hysteria than to chlorosis, we shall not dwell further on it here.

It has been already remarked that chlorosis is usually characterized by obstinate constipation, and that it predisposes to collections in the colon and rectum of indurated fæces, enormous masses of which are sometimes thus accumulated. As the bowels will sometimes act whilst these still remain lodged in the cells of the colon, the accumulation may easily be overlooked; we must, therefore, be careful that this evil, which interferes with and prevents all successful treatment, may not elude our vigilance. I saw lately a well-marked case of chlorosis in which a large, hard mass of fæcal matter occupied and distended the pouch of the rectum; it was so firmly lodged as to require mechanical means to effect its removal.

Amongst the less frequent, but by no means uncommon complications of chlorosis, serous effusions demand especial

notice. The tendency of this affection, as contra-distinguished from hæmorrhage, is to give rise to exudations of serum, whilst exudations of blood are comparatively rare. These effusions, which are common both to chlorosis and anæmia, may be poured out either into the serous cavities, or into the cells of the subcutaneous cellular tissue. Whenever the blood, from any cause, is reduced to an extreme degree of attenuation, we have much reason to apprehend such a catastrophe.

The following case illustrates chlorotic anasarca :—

A married lady, aged 19, had been for several months labouring under gradually increasing chlorosis. Previously to her marriage she had looked pale and delicate, and had lost much of her accustomed health, strength, and spirits. Marriage, it had been expected, would have had a salutary effect; and for a short time, whilst travelling, her health appeared to improve. She again, however, became languid, depressed, and pallid, and at length universally anasarcaous. In this state I first saw her. She was confined to bed; her debility so great that it was with difficulty she could be moved; and her whole person was enormously distended. Her face was œdematous, but less so than every other part of her body; a copious serous effusion had taken place universally into the cells of the subcutaneous cellular tissue. Her pulse was incalculably rapid, and so feeble that it was with difficulty it could be felt at the wrist. The heart's impulses were languid in the extreme, but unaccompanied by any abnormal sound. The respiration was permanently and greatly accelerated. The alvine excretions were liquid and of light yellow colour; she was so weak and helpless that she could not be placed on the bed-pan. The urine was light-coloured, not copious, of low specific gravity, but without a trace of albumen. A variety of treatment, both tonic and diuretic, had been in vain employed, and all hope of recovery abandoned; and yet there was no evidence of organic disease; the sole change which had taken place was in the blood itself. From the appearance of the

skin, and from the slightness of the pressure necessary to displace the fluid, it was evident that the effusion was of the thinnest nature. Under these circumstances I thought this an unusually favourable case for acupuncture. The operation was immediately performed; a great number of punctures were made, from which thin serum flowed copiously, and much care was taken to keep the patient dry and warm. Common salt was dissolved in water, to which the muriated tincture of iron was added; and of this as much was given, at regular intervals, as the stomach could easily endure; together with farinaceous nutriment and wine. On the next day the patient's condition was in every respect an improved one; the anasarca was diminished, the pulse more distinct and less frequent, the respiration less hurried, and the urine much increased in quantity. On the second day many additional punctures were made, and on the third day they were again repeated. After this day the greatly increased flow of urine, and the marked diminution of every urgent symptom, rendered it unnecessary to reiterate the operation. She gradually,—I may truly say rapidly,—recovered; her restoration was perfect; she became vigorous and even florid; she has borne several children; and many years have since elapsed, leaving her in the enjoyment of uninterrupted health.

The next case I shall record is one of great interest,—a case of extreme anasarca, the result of anæmia, and without organic lesion, occurring in an hospital-patient. He was about thirty years of age, had never lived intemperately, and was superior to the generality of hospital-patients in manner and education. His life had been spent in an office, at the desk, the nature of his occupations permitting him to take very little exercise. By long continued and frequently profuse bleeding from the hæmorrhoidal vessels, he was reduced to a state of complete anæmia, and, owing to extreme debility, had been compelled to give up his situation as a clerk. When admitted into hospital he was universally anasarcaous. The

first signs of œdema manifested themselves in the lower extremities and face; his respiration was hurried; his pulse feeble and rapid; no murmur accompanied the cardiac movements, nor was there any auricular evidence of deposition in the pulmonary cells. The urine was scanty, low in density, and not albuminous. He remained for several days in hospital, and the symptoms not being in the least degree submissive to treatment, it was determined to give exit to the fluid by acupuncturation. Numerous punctures were made, during several successive days, in different parts of the body; the thin serum flowed freely; the anasarca subsided; the secretions became abundant; and the treatment ultimately issued in a complete restoration to health. His diet was gradually rendered more and more nutritious; he was allowed wine and malt liquor; and after the operations, his medicines were iron and ammonia. I cannot avoid recording an emphatic expression used by this man. After having been twice acupunctured, and when the serum was flowing profusely, I asked him how he felt? His reply was: "Sir, I feel greatly relieved: when I was a boy, I wept from my eyes; now that I am a man, I weep from my whole body."

These cases illustrate the circumstances under which the operation of acupuncturation may be most advantageously employed; indeed the only circumstances which give to it a permanent value. It may often be practised usefully as a palliative: rarely, however, is it a curative measure. In dropsy from organic disease it removes the tension, and enables the blood to circulate more freely, so that the medicines may act, and the effused fluid be absorbed; but the organic disease remains, and the dropsy returns. In the foregoing cases there was no organic lesion, either cardiac, pulmonary, hepatic, splenic, or renal. The tension being removed, and the medicines enabled to produce their full effect, the serous effusion was absorbed, the constitution invigorated, the quality of the blood improved, and the cure rendered perfect. Far otherwise

is it in those vastly more numerous cases of dropsy, resulting from morbid change and deposition in organs essential to life; in many of these, acupuncture is an useful adjuvant in the treatment, but it cannot remove the cause of the effusion.

Trifling as this operation is, I have seen it followed by consequences the most disastrous,—erysipelas and gangrene. In advanced cases of dropsy, when the blood is much altered,—all but disorganized,—it is dangerous to puncture the skin. I have also seen cases in which, from the perpetual oozing of cold serum, the broken down state of the health and of the blood, each puncture has been followed by a large and foul ulcer. In other instances of hopeless dropsy, even though the patient escape these grave consequences of acupuncture, the limbs have been kept so constantly wet and cold, as greatly to distress the patient and aggravate his sufferings. It requires, then, observation and judgment to distinguish the cases in which this remedy may be safely and successfully employed. It may be here remarked, that the more limpid and less dense the effusion, the more favourable is the case for acupuncture. I have observed many cases of anasarca resulting from organic renal disease, wherein it required strong pressure to produce a pit or dimple; nay more, the limbs have been so rigid as to render the joints immoveable. such has been the density and solidity of the matter which occupied the subcutaneous cellular tissue. I have preserved the records of several interesting facts to illustrate the various degrees of density of the fluid effused in the different forms of anasarcaous swelling; which on some future suitable occasion I hope to bring before the profession.

I saw, some years ago, in consultation with Sir Philip Crampton, a very remarkable case of anæmic dropsy: the patient was about thirty-five years of age; he had been reduced by long-continued and profuse hæmorrhoidal bleeding to a state of extreme anæmia. The prominent symptoms were death-like pallor, excessive debility, languor, constant dyspnœa, occasional orthopnœa, bellows-murmur of the heart and arteries,

universal anasarca, and peritonæal effusion. Sir P. Crampton, by an operation, put an end to the sanguineous exudation; whereupon a rally took place; and then tonics, diuretics, moderate stimuli, and nutritious diet, completed the cure.

Formerly, cases of chlorosis characterized by unusual disturbance of the cardiac action were treated as genuine organic diseases of the heart. Repeatedly, in the early part of my professional life, I have witnessed the pernicious effects of this mistake. I have seen patients who needed iron, solid nutritious food, and the open air, treated by weeks or months of recumbency, digitalis, repeated bleedings, and abstemious diet. Fatal in its results must such treatment be. At the present day mistakes of this nature are of exceedingly rare occurrence; cases, however, do occur, the diagnosis of which is involved in some obscurity. Œdema of the lower extremities, co-existing with orthopnœa, startings in a fright from sleep, violent palpitations and systolic murmurs, are symptoms calculated to render the diagnosis obscure and difficult.

The following case of chlorotic anasarca, which fell under my notice many years ago, made a deep and lasting impression on my mind. It was that of a young lady, who, without any palpable or discoverable cause, had gradually fallen into a state of extreme chlorosis, her debility being such that she was confined to bed. She was unable to remain long in the recumbent position; she lay with her chest and shoulders elevated—the only position in which, with comparative ease, she could breathe; she was seized frequently with paroxysms of dyspnœa and palpitation; the lower extremities were much swollen, and the œdema extended to the hips. When I saw her, she was pallid and prostrated in the extreme; her pulse feeble, rapid, and unequal; a bellows-sound accompanied each systole of the heart, and a similar murmur was heard along the line of the large arterial tubes. I could not discover any venous hum or sound. In the lower extremities a very slight degree of pressure produced a deep pitting. The occasion of my visit was to deter-

mine whether, being provided with a bed in a travelling carriage, she might be removed from this city to the residence of her parents in the south of England. Her case was looked upon and had been treated as one of hopeless organic disease of the heart. A carriage, with a well-constructed bed, was provided; she was taken out a few times for a short drive, which she bore well. Her journey homewards was then determined upon. Each day's travelling was followed by a manifest abatement of the most urgent symptoms: the good derived from travelling was so obvious that it was persevered in. She continued to travel for a long time, and returned quite a renovated person. I saw her years afterwards full of health and spirits.

I was not then as well aware as I now am, of the extent to which an extremely attenuated state of the blood is capable of disturbing the cardiac and pulmonary functions, so as even to simulate heart disease. Nor was I fully acquainted with that form of dropsy or anasarca, which may appropriately be termed anæmic anasarca; a variety of dropsy usually looked upon as resulting merely from debility, but in reality dependent upon the remarkable attenuation in the quality of the blood which takes place in the advanced stage of chlorosis and anæmia. It is distinct, and easily distinguishable from the anasarca which accompanies Bright's disease of the kidney; it holds a separate place, and may be placed under the head of chlorotic and anæmic dropsy. A dropsical effusion frequently takes place in the last stage of purpura hæmorrhagica; this too depends upon an alteration in the constituent elements of the blood,—an alteration, however, in some respects, of a nature different from that which characterizes chlorosis.

Chlorosis and anæmia, as we have said, predispose to effusions into serous cavities. This may take place in the cavities of the brain. A boy five years of age had been reduced to a state of anæmia by long-continued, wasting fever, and was anasarcous in the lower extremities. Whilst in this state, though apparently improving in general health, he became gra-

dually, and at length profoundly, comatose. It was ascertained too, on examination, that there was complete hemiplegia of the left side. He was treated by blisters and mercurial inunction; gradually the coma and paralysis disappeared; as these symptoms subsided so likewise did the anasarca of the lower extremities; and the child, though still pallid and delicate, is now daily improving in health and strength, and exhibits no remaining sign of cerebral disease or dropsical effusion.

Miss B., eighteen years of age, having for several weeks manifested all the essential symptoms of genuine chlorosis, was seized with pain, neither severe nor of long continuation, in the left side, over the cardiac region. She soon became so breathless and weak that I was hastily summoned to see her. I found her scarcely able to breathe, pulseless, and to an extreme degree restless and agitated. The heart was displaced, its hurried and irregular impulses being perceptible only on the right of the median line; and the whole of the left side of the thorax was perfectly dull on percussion and destitute of respiratory murmur. The respiration of the right lung was loudly puerile. Copious vesications were rapidly produced by the free and extended application of acetum lyttæ; after which blisters were laid on the skin; sinapisms were placed on the feet and calves of the legs; and carbonate of ammonia with spirit of nitrous æther given internally. By these means some mitigation of the urgently suffocative symptoms was speedily effected. It had been my determination, had the patient not been quickly relieved, to have had the operation of paracentesis at once performed. Two hours, however, had not elapsed before a marked abatement of the suffocation rendered such a step, at the moment, unnecessary. Mercury was then rubbed in largely, and also given internally; digitalis in infusion was likewise taken. The combined action of mercury and digitalis was most remarkable and gratifying; after an interval of some hours the kidneys began to secrete, and so abundant was the diuresis, that the rapidity of the absorption was only equalled

by the suddenness of the serous deposition. By degrees the expansion of the compressed lung became more and more evident, in the restoration and extension of the respiratory murmur, and the gradual replacement of the heart, affording decisive evidence of the favourable progress of absorption. At the end of the third day from my first visit, the heart had nearly returned to its normal position; and the lung, throughout the greater part of the left side of the thorax, had audibly resumed its function. The restoration to health was ultimately complete. In this case it was the sudden change in the condition of the organs—the rapid compression of the lung and displacement of the heart—which gave rise to the suffocative sensations and the imminent danger. Had these changes occurred more slowly, the system would have been gradually accommodated to them, and the immediate danger would have been less pressing. Cases of this kind may arise in which nothing but an early recourse to paracentesis can save the patient's life. This young lady exhibited every sign of constitutional struma.

It may be well here to observe that mercury in this disease must be administered with extreme circumspection. I remember having seen, several years ago, in consultation, a young lady about eighteen years of age, who had been for months previously in the chlorotic state, and who had become universally anasarcaous. She was deadly pale and cold, no artificial appliances availed to maintain warmth in the extremities; the pulse was rapid and very feeble; there was, however, no discoverable evidence of organic lesion. She had been treated before I saw her with calomel in full doses, the result of which was sloughing of the gums and a large sloughing perforation of one cheek. She fell a victim to mercury administered with too unsparing a hand to one long labouring under chlorosis.

I have seen several cases of pleuritic effusion after long-continued fever, where the blood was reduced, apparently at

least, to the abnormal state characteristic of chlorosis. I say apparently, because, not having had an opportunity of examining the blood after a long fever, or after profuse hæmorrhage, I cannot venture to affirm their absolute identity. The similarity, at least, between the two states, is very striking.

I shall give briefly the following case, as an example of the form of pleuritic effusion I have met with in several instances after a tedious fever. A young college student, convalescent after a protracted fever, was observed to alter in his looks, not to improve as he had done, and to breathe more quickly. Not having seen him for several days, I was requested to visit him. I found him in the semi-erect position, inclined towards the left side; he had not experienced any painful sensation, but he felt more languid and weak than he had done for many days since the subsidence of the fever, and both his breathing and pulse were exceedingly rapid. He enjoyed little sleep, and that little was disturbed and uneasy. On examining the chest it was found to be dull on percussion over the left side, throughout its whole extent, and the respiratory murmur was inaudible. The heart was displaced: its impulse being audible, with visible motion of the integuments, three inches to the right of the median line. The left side of the thorax to the eye appeared much dilated, though but a small difference was detected by direct measurement; and the slightest exertion increased excessively the already existing dyspnœa. The effusion was, I presume, in this case, serous; it yielded gradually to mercurial inunction, and frequently repeated blisters. Other cases of effusion into either side of the thorax after fever, and several such after severe influenza, have fallen under my observation. In all these cases, long continued febrile action had reduced the frame and impoverished the blood; and it is exactly under such circumstances that a slight inflammation of the pleura is followed by copious serous exudation. These are cases in which, at a certain stage or period of the effusion, the tincture of the muriate of iron may be given with mani-

fest advantage. Profuse, long-continued, and often-repeated uterine hemorrhage also favours serous effusions. Albuminuria likewise produces pallor, attenuated blood, and tendency to serous effusion. In fact, any disease which deprives the blood of its due proportion of red corpuscles, may induce a state of anæmia, and predispose to effusions of serum.

Malignant diseases and tumours, either with or without hemorrhage, also produce a perfectly anæmic state, and give rise to anasarca. The condition of the blood in some (particularly the hæmorrhagic) cases of anæmia, appears to resemble, perhaps to be identical with, that of the blood in the advanced stages of certain fevers, which, towards their close, are characterized by passive hæmorrhages; the blood being so thinned and broken down as to ooze, often copiously, from mucous surfaces. No symptom in the advanced stage of fever can be much more fatal than this.

It occasionally happens that, when the patient is reduced to a state of extreme anæmia, not only does a serous effusion take place, but also a tubercular deposition.

Master C., æt. 11, an ardent, energetic child; rather precocious in mental manifestations and feeling, and abounding in animal spirits; of florid complexion, plump, and well nourished; had been, previously to my first visit, treated for strumous tumefaction of the cervical glands. I found him vomiting violently: the vomiting, though mitigated by treatment, continued in a distressing and exhausting degree for three days; it then abruptly ceased, and he appeared better. On the following day he was deeply and universally jaundiced, with some fever, thirst, and epigastric tenderness, but was able to retain in the stomach light farinaceous nutriment. The inflammation had obviously departed from the gastric, and had invaded the duodenal mucous membrane, and thus obstructing the orifice of the biliary duct, had caused jaundice. He continued in this state for many days; the yellow tinge then slowly and gradually vanished. During the whole of this period very

little nourishment had been received into the system. He was now, however, apparently convalescent, though greatly reduced in flesh, strength, and animal spirits. After the lapse of a few days, a slight rigor ushered in fever; and this was soon followed by an outbreak of erythema nodosum on both lower extremities. The patches were prominent, hot, painful, red, and irregularly circumscribed; they were of various dimensions, some being equal in size to a half-crown piece; and for three weeks they continued to appear in successive crops, some fading away, whilst fresh ones were coming out. Whilst the eruption lasted there was present, though varying in degree, diurnal fever of the remittent type. When convalescence was nearly re-established, the little patient, now very bloodless, pallid, and emaciated, began to complain of slight pains, not persistent, below the inferior margin of the left ribs. These, at first, attracted but little attention; at length the pain became more fixed and permanent, higher up under the ribs on the left side, and much augmented by a deep inspiration; an effusion commencing below gradually extended itself upwards, till at length the dulness on percussion was universal, and the extinction of respiratory murmur complete. The heart was slightly displaced, and the thoracic dilatation sufficient to obliterate the muscular movements, and the depressions of the intercostal spaces. After a long period of dyspnœa, often amounting to orthopnœa, accompanied with harassing dry cough, sleeplessness, agitation, and general distress—painful even to witness—the chest fell in and became palpably contracted. Over a considerable space of the superior portion of the left lung, both anteriorly and posteriorly, respiration was re-established. The respiratory murmur, when first heard, was mingled with a small crepitus; by degrees the signs, local and constitutional, of tubercular disease, chiefly of the left lung, became more unequivocal, until no doubt could be entertained of the nature of the disease which brought this little boy to an early tomb. Prolonged wasting fever, and imperfect nutrition, rendered him exsanguineous; in this state he

was attacked by pleuritis with effusion; nor was this all: coeval with the serous effusion was the deposition of tubercular matter in the parenchyma of the lungs. This disastrous event, masked at first by the effusion, but rendered subsequently manifest on the absorption of the effused fluid, stamped upon a case, otherwise not hopeless, an inevitably fatal character. Frequently during the progress of his illness, and on previous occasions, I had carefully examined the chest; and in no instance had I met with a more perfect example of sound lungs; of total exemption from any one sign, either local or constitutional, of preexisting crude or latent tubercle; so that no doubt was left upon my mind that the pleuritic effusion and the tubercular deposition were contemporaneous. I have seen and carefully observed many such cases, some of true chlorosis, others of superinduced anæmia, marked by the combined events of effusion into the sac of the pleura, and of tubercular deposition in the substance of the lung. In cases of this description I have known the operation of paracentesis proposed, and in one instance performed, when a careful analysis of the case would have rendered it certain, that the only possible result must be the infliction of a needless wound, with perchance a few days' prolongation of a miserable and suffering existence. On the subject of pleuritic effusions, some with, and others without tubercles in the lungs, I shall have occasion hereafter more fully to speak. I have not long since met with two cases of the double event alluded to, in young married women reduced to a state of extreme anæmia and debility by superabundant and too long continued lactation; they both terminated fatally, evincing before death indubitable signs of tubercular cavities; the local signs being most evidently marked on that side of the chest which had been the seat of pleuritic effusion.

In the foregoing remarks I have classed together cases of chlorosis and of anæmia. Between these two states there is a striking analogy; they both lead to the same pathological results; still, as I have before observed, they are not proved to

be identical. Hæmorrhage, by no means unusual in anæmia, is not frequent in chlorosis. In cases of anæmia, serous and sanguineous effusions may and sometimes do occur simultaneously; whilst anasarca is present, if the patient be attacked with congestion or inflammation of the brain, lungs, or any other organ, an effusion of blood, either circumscribed or diffused, may take place. A frequent cause of anæmia is hæmorrhage; but the hæmorrhagic action often continues, though the patient be already anasarcous and reduced to an extreme state of anæmia. Thus we occasionally meet with anæmia, hæmorrhage, and anasarca coexistent.

In chlorosis cutaneous eruptions are comparatively rare; in this respect the contrast with the hæmorrhagic diathesis is not a little remarkable. Upon the intimate connexion which exists between many varieties of skin disease and the hæmorrhagic condition, I shall hereafter have occasion, at some length, to dwell. There are on record, and I have, myself, met with, many instances of the alternation of cutaneous diseases, particularly of the eczematous kind, with hæmoptysis. In these cases, so surely as the exuding disease of the skin is either cured by art or spontaneously subsides, as certainly does the hæmoptysis return. In the hæmorrhagic condition, the superficial capillary system is often loaded with blood rich in red corpuscles, and various cutaneous eruptions are frequent; in the chlorotic state, this system receives comparatively few red corpuscles, and the skin is generally exempt from irritation and disease. To this general rule the exceptions are not numerous. In the treatment of many diseases of the skin this is a distinction of some practical importance; it frequently assists in pointing out the way which leads to the most effectual method of treatment. I have observed, in some cases, the outbreak of eruptions, particularly on the face, at that period when, the chlorosis having subsided, the opposite one of redness, flushing, and augmented mental and muscular vigour have been established.

Chlorosis has been traced to many sources; such as deep, long-continued mental emotions and sufferings; suppressed passions; sexual excesses and perversions; sudden cessation of the catamenia; profuse leucorrhœa; damp localities; impure air; transition from a rural to a city life; scanty and innutritious food; impressions of cold; sedentary occupations, and insufficient muscular exercise; copious and protracted hemorrhage; and wasting and prolonged fevers. In short, its origin has been attributed to all causes capable of deteriorating the blood, depriving it of its due proportion of red corpuscles, and producing the state of anæmia. These, however, one and all, do but predispose to the disease; there are required, in addition, a particular period of life and a particular condition of constitution, to produce it. Amongst the predisposing causes briefly enumerated, there is one which claims more particular notice; that to which I allude is the instinct of attachment, or, as it is termed by the phrenologists, adhesiveness. Amongst the moral and educated portion of the female sex, I have noted many instances of the all prevailing influence of this powerful instinct. It is implanted in the female mind more deeply than in the male. Besides, the busy and competing scenes of active life, in professional, laborious, scientific, or pleasurable pursuits, so distract the thoughts and attention of men, as to prevent the one prevailing thought from being constantly present before the mind. Not so with woman;—her lot in life is differently cast. The earnest and often necessary pursuits of men form generally but a fragment of female existence; and in the young, modest, retiring female there is nothing to break the current of her thoughts, or to interfere with the paramount influence of this strong, and, I will say, beautiful instinct. But, if it be the source of some of the most touching traits in the female character, it is often the source of unhappiness, ruined health, and premature dissolution. The attachment of the young female to the object of her affections is, of all mental influences, the most powerful; so

powerful, as often to absorb and set at nought all other considerations. It is the sudden—often rude—disruption of a long cherished and, perhaps, concealed attachment, which undermines the health, prostrates the vital actions, and lays the foundation of hopeless and consuming disease. Too much stress is generally laid upon ungratified sexual instinct; it has its influence, and, in some minds, a powerful one; still, as far as my observation has reached, it is much less frequently the cause of injured health than a strong attachment abruptly broken. To this, as a starting point, I have been able to trace many cases of chlorosis; and when, in such instances, the strumous diathesis prevails, there are strong grounds to apprehend its ultimate issue in phthisis.

Occasionally I have observed chlorosis to have arisen, as it were, spontaneously, and without the intervention of any one of the usually assigned causes; and that too within a very short period of time. I have noted cases in which the transition from a state of apparent health to that of fully formed chlorosis, has not occupied more than a week or ten days. Such a disease, thus rapidly established, and without any palpable cause, strikes one as a very singular phenomenon.

Equally remarkable is the slow and gradual development of the disease in young persons not exposed to any influence whatever, to which the disturbance of the health could be referred. When a cause has been in operation, which we can seize upon to account for the altered aspect and condition of the patient, our wonder is less excited; but when, on the minutest scrutiny, we are unable to discover any cause capable of giving rise to the disease, we are naturally led to inquire, how can this be? I have seen the disease to arise in young persons placed in circumstances the most favourable and conducive to health; and have been unable, after the most careful investigation, to discover any cause, either in the habits of life, or the affections of the mind, sufficient to account for the great change which had been wrought, the remarkable de-

pression of the vital energies, and the totally altered colour and complexion. Can we throw any light upon a subject involved in so much obscurity? The result of many observations which I have made is, that the source of the morbid action is struma. The imperfection of organization, hereditary or acquired, usually termed struma, is the source of many constitutional as well as local evils. Amongst the former is chlorosis.

Of those affected with this disease, a very large proportion is strumous. In no instance have I met with a case of spontaneous chlorosis, except in a member of a family, upon each of whom the characteristics of the strumous diathesis have been unequivocally impressed. Though this does not explain all, it gives, at least, a clue to the interpretation. We shall, however, postpone any further remarks on this part of the subject, as they come more properly under the consideration of the signs and evidences of the strumous diathesis.

We cannot dismiss the subject under consideration without making some allusion to what may be termed the essential treatment, without instituting the important inquiry,—do the resources of art furnish us with any substance, mineral or vegetable, capable of restoring to the blood its normal density, and its due proportion of red corpuseles? The answer to this question points at once to a mineral, the efficacy of which is as remarkable as that of any other medicine in the whole catalogue of remedies; neither do bark, nor mercury, nor wine, nor bleeding, nor opium, nor antimony, even when most judiciously administered, exhibit effects more manifestly therapeutic than iron does in this disease; nor does iron bring more of wealth to the inhabitants of the country from the bowels of whose earth this valuable ore is dug up, than it does of richness to the blood of the chlorotic patient. It is remarkable, too, how universally diffused are chalybeate springs, as if it were the design of Nature that iron in abundance should be mingled with the blood, and that it should be incorporated largely with vege-

table matter. Whether the preparations of iron produce their effects directly by augmenting the proportion of red corpuscles in the blood, or indirectly by invigorating and improving the digestive function, still there is no medicine the curative properties of which are more fully established. The probability is, that it acts usefully in both ways. Iron, then, judiciously administered, is a most valuable and important therapeutic agent. Nor is its salutary action restricted to chlorosis; there are many other pathological conditions of the animal economy over which it possesses the same power in improving the blood, and thus restoring tone to the nerves and vigour to the muscles. Often in chlorotic patients have I watched the change wrought in the system from day to day under the vivifying influence of this remedy, and most striking, and sometimes rapid, have been its health-restoring effects. Were all cases of chlorosis simple and unmixed,—were it not liable to the various complications to which we have already alluded, then, indeed, the treatment were easy, and the cure certain. But this is not always the case: various co-existing affections complicate the treatment, and even forbid for a time the employment of chalybeates; besides, there are individual constitutions so intolerant of iron, so peculiarly affected by it, that we are compelled altogether to forego the administration of this useful remedy. We occasionally, also, meet with patients who cannot endure it, except in quantities too small to effect a cure; we are, in consequence, sometimes compelled by necessity to look around for a substitute, and the most efficient one which I have been enabled to discover is bismuth. Under the influence of this metal I have seen gradual and satisfactory recoveries take place in persons whose idiosyncrasy forbade the use of iron. I must not omit to mention the marked utility of cinchona and its salts, and of the carbonate of ammonia. Many bitter vegetable tonics, also, are productive of benefit; but I place more reliance on bismuth, carbonate of ammonia, and the salts of Peruvian bark, than on any of the other sub-

stitutes for iron which are usually prescribed. The injurious effects produced by iron are throbbing and pulsation of the vessels of the head, headach, vertigo, and sometimes epistaxis. In one case which lately fell under my notice it produced all the symptoms of intoxication; in another, though given in moderate doses, it caused a delirium which did not subside until the third day. Its tendency is also to produce acceleration of the pulse, heat of skin, and febrile excitement. In a few instances I have observed a well-characterized periodic fever to have resulted from its excessive administration.

There is another ill effect which iron is apt to occasion,—constipation of the bowels; this itself is one of the most uniform symptoms of chlorosis; it is, however, augmented by the ferruginous treatment. Hence arises the important practical rule of thoroughly evacuating the bowels, and of completely allaying intestinal irritation, as a preliminary step to the administration of iron; and of combining with it, during the whole progress of the treatment, such mild aperients as are best suited to the individual constitution, and best calculated to maintain a sufficient and regular action of the bowels.

The mode of administering iron is not unimportant. There is none superior to that of drinking the natural waters at a chalybeate spa; its distance enhances its value, because it involves the necessity of travelling, of change of air, climate, scenery, and associations; and the more the patient enjoys travelling, the more exhilarating will it be to the spirits, and the more effective will the remedy prove. Of all the distant spas, I know not one more generally efficacious than the Langen-Schwalbach, in Nassau. There are many, however, for whom the weakest of these springs is too powerful; for such, a water less strongly impregnated with the mineral should be selected. Domestic or pecuniary circumstances, and oftentimes the actual condition of the patient, will preclude the adoption of this remedy: so that, for the many, the treatment must be con-

ducted without removal from the paternal roof. To the labours of the chemist we are indebted for several excellent new forms in which this mineral may be exhibited; nor is this without its value, for the preparation which agrees best with one constitution does not accord equally well with another. There is also considerable variety in their effects; the muriated tincture, for example, produces on the stomach, bowels, and kidneys, an action far different from that of the subcarbonate or the sulphate; and so of the other preparations. Besides, in a disease which generally requires for its cure a prolonged course, it is no small advantage both to vary the preparation, and to be enabled to administer it in a palatable form. The acetated tincture of iron, a formula for which we are indebted to the late Dr. Percival, of this city, is, when carefully prepared and well preserved, a valuable medicine; given in asses' milk, or in cow's milk divested of its curd, it may be easily taken, and long persevered in.

The wine of iron, an old preparation, is one sometimes to be preferred, and may be given in the same manner as the acetated tincture. It is mild in its action, and very suitable for children. The wine of iron and rhubarb is, in many instances, a compound productive of excellent effects. The combinations of iron with ammonia are extremely useful; ammonia forms an important adjunct in the treatment of many cases of this disease, particularly those which are characterized by distressing coldness of the extremities. Mr. Bewley's effervescing chalybeate is a very eligible preparation, and applicable to many cases; impregnated as it is with fixed air, it is grateful both to the palate and to the stomach. The following formula I have also found suitable to many cases; water of the citrate of ammonia, three drachms; water, six drachms; syrup, a drachm; citrate of iron and quinine, from one to three grains:—mix, for a draught to be taken twice or thrice daily.

In both chlorosis and anæmia, I have observed that the treatment has been rendered more certainly, and more spee-

dily effective, by administering iron in conjunction with Peruvian bark and the salts derived from it. Hence arises the value of the triple salt just named; hence also the efficacy of the aromatic iron mixture, which, when united in equal proportions with Griffith's mixture, constitutes a very useful compound. I have often prescribed—and I think with excellent results—bark, iron, and ammonia conjointly in the following manner:—Decoction of Peruvian bark, ten drachms; tincture of bitter orange peel, one drachm; syrup of ginger, one drachm; bicarbonate of ammonia, fifteen grains. Mix. To be taken two, three, or four times daily, in effervescence, with half an ounce of lemon juice. The compound iron pill, so prepared as to insure its solubility in the stomach, and repeated in sufficient doses three or four times daily, with the addition of about half a grain of sulphate of quinine,—which, though an unchemical formula, increases much the efficacy of the compound,—forms one of the most generally and certainly effective modes of administering iron. In pill it is less likely to produce headach, than in solution; and for those who can with facility swallow pills, this mode of introducing iron into the system is at once more easy, and admits, without causing disgust, of being longer continued. The saccharine proto-carbonate, diffused in a vegetable bitter, is also an excellent chalybeate. In cases which require a mild aperient, in co-operation with the chalybeate, I have found the following powders particularly useful:—bicarbonate of soda, fifteen grains; tartaric acid, ten grains; dried sulphate of iron, from one to five grains; powdered white sugar, half a drachm. This powder should be kept in a dry place, dissolved in a wine-glassful of water, and swallowed whilst effervescing. These powders I have been in the habit of prescribing for the last ten years; they were first prepared for me by the late Mr. Fergusson, of Kildare-street. I saw lately in a periodical a good formula for this powder, and very similar to the one now given. As a general rule,—to which, however, there are some exceptions,—iron should be given in

small doses. Some of the natural chalybeate springs, which possess remarkable restorative properties, hold extremely minute quantities of iron in solution—a hint derived from nature, which we may often advantageously adopt.

The effect of iron in changing the colour of the *facies* is so well known, that it is unnecessary to dwell upon it; it is also capable of producing an alteration in the aspect and properties of the urine. In proportion as the amount of red corpuscles in the blood is increased by the use of iron, change of air, or other remedies of a tonic nature, so is the quantity of urea and uric acid in the urine augmented. If the chalybeate treatment be too long persevered in, it may lead to and establish a condition of the system directly the reverse of that for which it was originally prescribed. Some time since I saw a young lady, whom several months previously I had treated for distinctly characterized and extreme chlorosis. In the interim she had gone to the country, had travelled, and had persevered in the chalybeate treatment for many weeks after the chlorotic symptoms had disappeared. When I saw her, I found her in a totally opposite state, complaining of flushings, headach, red pimples, and a deeply florid colour of the face. Such were the symptoms, which now troubled her far more than her former death-like pallor, and for which she more anxiously sought a remedy. The transition, in her case, was striking: she had been chlorotic, she was now hyperæmic; the red corpuscles, which had been minus, were now become plus. Of this transition I have met with several well-marked instances. A change having taken place in the condition of the blood, the treatment should likewise be changed, since the remedies necessary to ameliorate the condition of the blood in chlorosis, if too long persevered in, may originate an opposite and equally injurious state of the system. The truth of this remark is exemplified in those individuals who, by profuse hæmorrhage, are reduced to the chlorotic state. In many of these instances (in females, from uterine hæmorrhage;

in males, from long-continued hæmorrhoidal bleeding; and in both, from profuse epistaxis) the blood is so thinned that iron becomes the efficient remedy; but if continued too long, hæmorrhage is reproduced.

Having dwelt upon the effects of iron, and upon some of the formulæ for its administration, the inquiry suggests itself, do we possess any medicine capable of diminishing the amount of red corpuscles, when in excess, of equal efficacy with iron (whatever be its mode of action) in augmenting their quantity when deficient? Can we, in fact, take away from the richness of the blood with the same certainty that we can add to it? Obviously by bleeding, abstemiousness, and evacuations, the whole mass of the blood may be attenuated and impoverished: by these means, however, the blood is not only deprived of its red corpuscles, but all its constituents are wasted, and the object of diminishing the proportion of red corpuscles alone is not attained. Now this is a very interesting inquiry, and merits the fullest consideration. I shall merely touch upon it at present, and reserve more extended observations respecting it until we shall have spoken of the various forms of hæmorrhage. I cannot, however, avoid noticing some remarks which have been made on this subject by Dr. Freke, the clinical clerk to our medical wards, to whom I am indebted for much valuable aid in our researches in Stoevens' hospital, and whose accurate and extensive knowledge of organic chemistry is of great value in the investigation of the phenomena of disease, and its treatment.

In the year 1843 Dr. Freke published in the *Medical Times* the following inquiries: "Would it not, then, be of importance if any means could be suggested whereby the red globules alone might be diminished, while the other constituents of the blood remained unaffected? Could this be accomplished by the hydro-sulphuret of ammonia?" He then proceeds to express his belief in the twofold possibility that such end might be effected, and that the hydro-sulphuret of

ammonia might be possessed of the power of depriving the red globules of an essential constituent, "appropriating to itself a portion of that iron which would otherwise have contributed to the formation of the red globules." His grounds for such belief were, conjointly, the known affinity between iron and sulphur, the observed effects of hydro-sulphuret of ammonia on the economy, and the supposed function of iron in the globules. In the last number of the same periodical appeared an article, headed "Researches on the Human Blood," by M. Bonnet, of Lyons, the concluding paragraph of which is as follows: "M. Bonnet has further remarked, that the hydro-sulphuret of ammonia destroys the globules completely, and deprives the blood of the faculty of assuming the bright scarlet colour of arterialization." Thus the suggestion put forward by Dr. Freke three years ago, has been in a measure confirmed by the recent researches of M. Bonnet. This important practical inquiry requires further investigation; it may lead to valuable results. Whether the hydro-sulphuret of ammonia acts primarily on the nervous system, as a sedative poison, or its direct effect be to dearterialize the blood, still, as a medicine, given in well-regulated doses, it may yet be found to possess curative properties.

In the second Number of the Dublin Medical Journal, May, 1832, a case of disease of the heart was published, at my request, by my late friend Dr. Newton, in which the hydro-sulphuret of ammonia having been administered, the heart's action was reduced to forty-eight in the minute, with an abatement of all the urgent symptoms. In other cases, too, the influence of this medicine upon the heart and pulse were very remarkable. I was led to adopt this practice by the accounts given of it by Dr. Rollo, in his work on diabetes. I may further observe, that I have been for many years in the habit of prescribing the hydro-sulphuret of lime in the treatment of diseases of the skin. I have employed it internally, in doses of from ten to thirty drops, sufficiently diluted; and

externally, in the form of vapour, of lotion, and of liniment. I have reason to speak very favourably of its effects, more especially in those cases in which, from appearances at least, we should be induced to expect an excess of the red corpuscles. Might not its action be similar to that of the hydrosulphuret of ammonia?—and might not this investigation, if fully carried out, throw a clearer light upon the manner in which the sulphureous waters of Lucan, Harrogate, Aix-la-Chapelle, &c., and the various preparations of sulphur, influence the animal economy. The inquiry is one of interest, and involves the consideration of the treatment of a large proportion of cutaneous affections.

Before dismissing the subject of chlorosis we must notice the opinion entertained by some, that there is a close relation between the functions of the great sympathetic nerve and the symptoms of chlorosis. There are, undoubtedly, strong grounds for the opinion. The ganglionic system of nerves, termed the sympathetic, exercises so paramount an influence over digestion, absorption, deposition, secretion, circulation, respiration, and reproduction, that we cannot but conclude that many of the phenomena of chlorosis are traceable to a primary derangement in the function of this important and widely distributed nerve. I find that Dr. Hill has made some remarks on this subject, and written a sketch of the anatomy and functions of the sympathetic nerve, and its intimate connexion with the essential symptoms of chlorosis, which, when completed, shall be laid before the profession. We have noted, and have on record, a large number of cases, both of chlorosis and of hæmorrhage, in which the blood has been carefully examined; these, in a condensed form, shall be given after the subject of hæmorrhage shall have been treated of.

To Dr. Hill I am deeply indebted for his energetic co-operation in all these investigations: without the aid of his talents, industry, and perseverance, I could never have prosecuted these inquiries.

It is to be regretted that hitherto our investigations have been restricted to venous blood, the opportunities of examining arterial blood being rare indeed.

In the use I have made of the term anæmia, I wish it to be understood that it is intended to imply a diminution in the density of the blood, with pallor and debility, without any reference to its quantity, which may be either augmented or diminished.

ART. VIII.—*Cases of Excision of the Cervix Uteri for Carcinomatous Disease.* By J. Y. SIMPSON, M.D., F.R.S.E., Professor of Midwifery in the University of Edinburgh; President of the Edinburgh Obstetric Society, &c., &c.

[Read before the Dublin Obstetric Society.]

IN eight instances I have had occasion to perform excision of the cervix uteri. In three of these eight cases, the operation was had recourse to for the removal of excrescences, or morbid structures, possessed of a carcinomatous tendency and character. In the following remarks I propose to describe the more leading facts connected with these three cases, and the results of the operation adopted for their treatment. I shall append a few observations on the method I have followed in performing the operation, and on the cases of uterine disease that appear to be most adapted for its employment.

CASE I.—Between four and five years ago, I laid before the Medico-Chirurgical Society of Edinburgh some details of this case, and had an opportunity of shewing them the characters of the excised structures, while still in a recent state.

The patient, aged 33, weaned her fifth child in June, 1839. For about a month previous to that date, and during several months subsequently, there was a constant slight menorrhagic discharge present. She aborted in October, and afterwards the reddish vaginal discharge increased, was often mixed with

Case I.

FIG. 1.

Enlarged Liver, with a collection of pus, removed from the body.



FIG. 2.

Lower or Visceral surface of the Liver.





Case 2.

FIG. 1
Tumour attached to posterior lip, Anterior lip ulcerated



FIG. 2
Excised Cervix Uteri & Tumour seen from above.



coagula of blood, and had an offensive smell. At times it lost so much of its red tint as to appear comparatively pale and watery. For some months before I saw the patient, the discharge was so profuse as to require the daily use of several napkins. Twice there occurred alarming hæmorrhage without any obvious exciting cause. There was no local uterine pain or uneasiness. By the time I first visited the patient with Dr. Lewins in May, 1840 (eleven months after the discharge first appeared), she had become greatly weakened and reduced. Her face was pale and anemic, and she was occasionally obliged to keep her bed, in consequence of debility and exhaustion.

On making a vaginal examination, Dr. Lewins and I found a tumour, the size of a small pear, attached to the whole posterior lip of the os uteri; its basis of attachment was very broad; its surface was of a strawberry colour, rough, granulated, and fissured; it was insensible to touch; but the superficial vessels upon it bled freely under slight pressure or abrasion with the finger or speculum.

On the 25th May, 1840, I excised the whole vaginal portion of the cervix uteri, with the tumour attached to it. In order to secure its complete removal, and insure that my incision was, if practicable, through healthy tissue, and above the seat of the morbid degeneration, I divided the cervix as high up as the reflection of the vagina would permit, and even removed at one point a line or two of the reflected mucous membrane of that part. The excrescence measured $2\frac{3}{4}$ inches at its broadest part, and $2\frac{1}{4}$ in its greatest depth (see Plate I. Figs. 1, 2). After the tumour was steeped in a strong alcoholic solution of corrosive sublimate, its section presented to the touch and sight an appearance greatly resembling that of brain hardened by the same menstruum. It was microscopically examined by Mr. Goodsir, and found to present a nucleolated cellular structure, but no condyloid or spindle-shaped bodies were observed in it.

The patient recovered rapidly from the operation. The morbid discharge, from which she suffered so much, ceased from the date of the removal of the tumour; and, when I last reported the case (see *Edinburgh Medical and Surgical Journal*, No. 146), in November, 1840, she was advanced several months in pregnancy. In commenting at that time upon the operation and its probable results, I ventured to make the following remarks :

“ In the case which I have reported, I undertook the amputation of the diseased part with strong doubts as to its ultimate success. The patient’s peace of mind was broken, and her constitution was so rapidly giving way under the constant, profuse, and weakening discharges which afflicted her, that she would, in all probability, have soon sunk under them.

“ Immediately after the operation was performed, these discharges completely ceased, and have never since returned. Her health and strength have been in the meantime restored to her, and she is, at the present moment, advanced beyond the middle period of pregnancy. The morbid characters of the diseased structures that I removed, are such, certainly, as to render its future regeneration not at all improbable, but as yet there are no local appearances of its return; and, taking the very worst view of the case, there seems to be no reasonable doubt but that the operation has restored the bodily comfort, and prolonged the life of the patient, if it has not entirely freed her from the risk of a future return of the disease.”

My most sanguine expectations regarding the case have been more than realized by its subsequent history. Since the date of the operation, May 22nd, 1840, the patient has been three times pregnant, and given birth to three children, all of them now alive and well, viz., the first, born on the 14th of February, 1841(*a*), the second on the 18th of May, 1843, and the third on the 19th of April, 1845.

(*a*) See an account of the first labour after the excision of the cervix uteri, with some interesting remarks upon the operation, by Dr. Lewins, Jun., in the *Edinburgh*

When I lately saw her (10th August, 1846), still nursing this third child, now nearly fifteen months old, she declared to me that she never had enjoyed, in all respects, better health than at present.

On examination I found the os uteri presenting an indentation or fossa resembling the fossa of the umbilicus, instead of the usual nipple-like projection of the cervix.

CASE II.—In the autumn of 1843 I was called to Kincardine, Clackmannanshire, to see this case. It was under the care of Dr. Wilson, now of Edinburgh, and who was then practising at Kincardine. The patient, aged 40, had been eight years a widow. She had been previously married eleven years, and borne five living children. After suffering for some time under considerable leucorrhœa and pain in the back, the symptoms increased much in intensity about the beginning of August, 1843 (six or seven weeks before I first saw her). The discharge then assumed a more watery character, and imparted an excoriating burning feeling to the parts as it passed. It was augmented very greatly in quantity, especially in the erect posture, and was generally mixed with blood under the slight straining efforts required to empty the bladder and rectum. After this watery "boiling discharge" (as the patient herself termed it) had lasted profusely for about a fortnight, severe hæmorrhage came on. It was kept under imperfect restraint by the supine posture, &c., for the next few days, when, at the return of the normal catamenial period, great flooding supervened, and, in despite of the use of cold astringents, the plug, and other active and appropriate measures, much blood was lost. The patient, though naturally a very strong and robust woman, was, in consequence, soon reduced to such an extreme state of anemic weakness and exhaustion, that she required to be lifted with sheets when they ventured, from time to time, to get her bed

Medical and Surgical Journal, No. 147. The os uteri was very rigid, and dilated with difficulty. Her two subsequent labours have been much easier.

made dry, and she became sick and faint whenever her head was attempted to be raised. I saw her at this time, with Dr. Wilson and other practitioners of the neighbourhood. On cautiously removing the vaginal plug, I found the posterior lip of the os uteri enlarged, indurated, and roughened, and the surface of it and of the anterior lip the seat of ulceration of an apparently malignant kind. The base, however, of the cervix appeared so far free from disease as to allow the possibility of the excision of the parts above the line of the morbid structure. Two days afterwards, viz., on the 13th of September, I accordingly excised the whole cervix uteri. Dr. Wilson, Dr. Girdwood of London, Dr. Adamson, and Mr. Crawford, were present.

The excised mass measured about an inch and a-half in diameter at its base, and the incision through the cervix uteri passed, apparently at all points, through a healthy structure. In other words, the line of incision was above the seat of disease, and, consequently, the whole diseased tissue seemed removed. The posterior lip of the cervix was enlarged, in the form of a tumour, to the size of a pigeon's egg, and roughish and tuberculated upon its surface (See Plate II. Figs. 1, 2). The base of the tumour found upon the posterior lip, and some part of the unenlarged anterior lip, were the seat of ulceration, marked by an acute sharp edge. The diseased structure of the posterior lip slightly passed the angle or commissure of the left side, and partially invaded the anterior lip. Dr. Anderson, Professor of Medicine in the Andersonian University, Glasgow, and an excellent morphological anatomist, kindly examined for me a section taken from the enlarged posterior lip. Its structure was found by Dr. Anderson to present, in a well-marked degree, all the usual microscopic and anatomical characters of Müller's *Carcinoma fasciculatum*.

After the excision of the diseased structures the lumbar pains and local watery and hæmorrhagic discharges entirely ceased. Pus was secreted for some days from the surface of

the wound. The patient rallied so speedily in health and strength, that within a fortnight she was able to be taken into the garden. For two months subsequently she did not menstruate, but afterwards the catamenial discharge occurred regularly, accompanied with dysmenorrhœal symptoms. A year after the operation I visited my patient, when I happened to be in the neighbourhood, and found her in excellent health, busily employed in active and fatiguing duties, and again ruddy and florid in complexion. On examination the os uteri felt firm and puckered, like the cicatrix of a common stump upon a small scale.

I had a letter from this patient a few months ago, in which she says :

“ I am happy to state to you that I enjoy the best of good health. The monthly period is regular and right. I have no pain or uneasiness in the stomach.”

In a communication of a later date, (15th August, 1846), the same favourable report is, in all respects, confirmed.

CASE III.—The subject of this case was a patient of Dr. Paterson of Leith. I am principally indebted for the notes of it to Dr. Jackson, who, along with Dr. Paterson, watched over the poor woman with great care and kindness.

The patient, aged 36, had been twice married, and had borne two children to her first husband. She had been married a second time for six years without having any family. During her first marriage she had contracted syphilis from her husband, and it was nearly two years before she entirely recovered from it.

For a long time previously to her seeking medical advice, she had laboured under menorrhagia and leucorrhœa. Four months before I first saw her, there was a great increase of the leucorrhœa, and the discharge assumed an offensive smell. After being under treatment for some weeks for this aggravated leucorrhœa, menorrhagia supervened about the middle of June, 1844, recurring to a considerable amount every three or four days. The discharge sometimes changed from a red

and clotted appearance to a dark brown colour, and more fluid consistence.

I now quote Dr. Jackson's notes of the case :

“ In the beginning of August, on examination *per vaginam*, I discovered a tumour or excrescence, about the size of a large walnut, attached to the anterior lip of the os uteri. It had a rough, warty, softish feel, and bled on being touched.

“ Soon after this the discharge increased, amounting to nearly what we see in severe flooding after delivery. The plug was introduced, and had the effect of arresting it. On the withdrawal of the plug a few days afterwards, a discharge of clear, watery fluid commenced, and continued for some days in large quantity. The patient now began to lose colour and strength ; by and by the pulse sank, and long and protracted faintings took place. At this time (13th August, 1844) Professor Simpson saw the case, and it was agreed to excise the cervix uteri and attached tumour as soon as arrangements could be made. This was accordingly done on the 16th.

“ The patient bore the operation well ; simple laxative medicines were given, the vagina frequently washed out with tepid water, and an occasional anodyne exhibited. The only unfavourable symptoms that followed the operation were thirst and vomiting. For a time these were very distressing, but soon disappeared ; and subsequently, under the use of tonics, the patient regained her usual health and strength, menstruating regularly, and during the intervals had only a slight whitish discharge at times.

“ In the commencement of April in the following year (1845), eight months after the operation, I again,” Dr. Jackson continues, “saw the patient, who informed me she still was well, and continued as when last described.

“ This happy state did not last long, for on the end of the same month there was a sudden and violent discharge of blood from the uterus, demanding the immediate use of the plug. This kind of discharge took place occasionally during the next few months ; and in the intervals there supervened a

discharge of greenish and clear-coloured fluid, having an offensive smell. This discharge increased and continued in very great quantity till the day of her death, 24th October, 1845, fourteen months after the operation.

“The amount (Dr. Jackson adds) of this clear-coloured discharge, may be fancied, when I state that her linen and lower bed clothes used to be soaked three or four times a day. Many remedies were tried in vain, and examination *per vaginam* discovered the cut surface of the neck of the uterus amidst much softening of the neighbouring parts, all of which felt covered with a thick mucus.

“During the continuance of the discharge, and about three months before her death, she had a severe attack of anasarca, with a great loathing of food, and vomiting, and complained of dull and obscure pain in the lower part of the abdomen. The œdema, however, yielded to treatment, but again returned a fortnight previous to her death; and she apparently sank ultimately under pure exhaustion from the excess of the discharge.”

The excrescence which I removed in the preceding case, was of an oval form, and nearly the size of a small peach. It was slightly irregular and lobulated on its inferior or free surface, and on more narrow examination this surface presented a small granulated appearance. The line of incision by which it was removed seemed to pass through healthy tissue. On microscopic examination, Dr. Anderson found the structure of the tumour to present all the characters of Müller's *Carcinoma reticulare*.

On inspecting the body of the patient after death, Drs. Paterson and Jackson could not detect any traces of disease in any part except the pelvis. The body and fundus of the uterus were slightly enlarged; and in several places its peritoneal coat was strongly united to the Fallopian tubes, and the neighbouring serous surfaces, by old false membranes. The site of the excised cervix uteri, the upper portion of the vagina, and the

cellular substance intervening between these points, and the bladder and rectum, were the seat of pultaceous softening and ulceration, but there was little or no thickening or actual morbid deposit in these parts. Dr. Anderson examined microscopically the structure of the uterus at the seat of excision and ulceration, but could discover no decided marks of *carcinoma reticulare*, or other specific form of malignant structure in the tissues of the part. From the softened condition of the affected textures, it was found impossible to ascertain, at the time of the autopsy, whether the degeneration and ulceration extended, or not, through the recto-vaginal septum into the rectum itself.

METHOD OF OPERATING; COMPLICATIONS AND CONSEQUENCES.

In performing the excision of the cervix uteri, in the three instances I have detailed, and in the other cases in which I have operated, I have proceeded on the following plan:—I have fixed one or two vulsella into the outer or vaginal side of the diseased cervix, as high as it was possible to insert them, and, by the purchase which they afforded, have gradually and cautiously dragged this part down in the lines respectively of the axis of the pelvic brim, cavity, and outlet, till it appeared so far beyond the vulva as to allow me to cut through the base of the protruding cervix. In one or two cases I used a knife in making the incisions. But in consequence of the powerful retraction under which the cervix uteri is placed during the operation, it is difficult, or indeed impossible, to make the incision in this way so equable and perfect as to remove with certainty all the diseased part. After a partial cut or two the uterus is strongly retracted at the points of incision, and the remainder of the operation requires to be finished with the line of incision thus rendered irregular and confused. A pair of large, curved, blunt-pointed scissors, such as were used in this operation by Osiander and Dupuytren, is in this respect preferable. We are enabled by them to surround and embrace

the whole cervix at once; and having cautiously and carefully adjusted their edges to the very points which we wish to divide, and thus calculated, at this preliminary step, the exact limits of the incision, we may then immediately complete the amputation of the part, by one or two strong and rapid strokes of the instrument. The blades must be placed around the cervix, *above* the line of the teeth of the vulsellum; and then our object is (is as it were) to cut out the vulsellum along with the whole inferior and diseased part of the cervix, in which it is fixed. The operation is much facilitated by the labia being strongly pressed aside by broad copper spatulae.

I have always placed my patients upon the face, the body being situated across the bed, and the lower extremities hanging over it, as in the operation for hæmorrhoids. We are thus enabled to make our incision through the cervix uteri from behind forwards, instead of from before backwards,—a matter, in my opinion, of no small moment. For if we cut in this latter direction, viz., from *before backwards*, we would sometimes run a greater danger of opening into the peritonæum, which stretches downwards so much more behind than in front of the cervix uteri, and offers a very thin wall of partition between the cavity of the vagina and the cavity of the abdomen. Latterly, I have found the first portion of the operation, namely, the seizure and traction of the cervix uteri, much facilitated by using a very large and strong vulsellum, made with the common loose joint of the obstetric forceps, instead of the usual fixed pivot or scissors joint. With the common scissors-jointed vulsellum, whilst we are intent on fixing the teeth of one blade in a proper situation, the teeth of the other blade are always apt to become entangled in the tumour or walls of the vagina itself, and thus impede and embarrass the operator. But with the modification of the vulsellum that I have alluded to this difficulty is avoided, for the individual blades are introduced, adjusted, and fixed, separately and successively; and then, afterwards, they are easily united together for further use. Besides in this way, we

far more readily effect what are, I believe, the two principal secrets in the operation, viz., 1st.: We fix both blades of the instrument, and more especially that corresponding to the diseased lip, as high upon the cervix, and as near its line of reflection upon the roof of the vagina as possible; and 2ndly, by making our line of incision immediately above the hold of the vulsellum (as if our object were to cut out that instrument and the part which it embraces), we secure this important point, that the incision which we make is more likely, than if we followed any other plan, to pass through a stratum of healthy tissue, as we thus inevitably remove the whole vaginal portion of the cervix uteri, and the diseased structure of which it is the seat. In thus attempting to insert the vulsellum as high as possible in the cervix, we will succeed far better by guiding it directly to the point required by the finger and the sense of touch, than by attempting to direct it by the speculum and the sense of sight. In fact, if the cervix is, as generally happens, at all much increased in size, it is, of necessity, utterly impossible to see, with any speculum, the part in which the teeth of the vulsellum should be fixed,—that part lying much higher than the sphere of vision.

Several forms of danger have been found to attend upon excision of the cervix uteri. A fearful variety of nervous depression is alleged by some authors to supervene occasionally upon the operation. I have seen no instance of it. Severe hæmorrhage sometimes occurs, but it is much rarer than we might *a priori* expect. In only one case have I met with it in any considerable amount, and in that instance it was readily and effectually restrained by the plug. Out of nineteen private patients operated on by Lisfranc, Pauly avers that four died within twenty-four hours. Subsequently there is further danger to the patient from inflammation kindling up in some of the uterine structures, or in the peritonæum itself. Out of the eight cases in which I have operated, seven recovered perfectly. The remaining eighth patient recovered so far as to leave her

bed-room, but was then, from an unfortunate domestic quarrel, subjected to great mental excitement, after which she relapsed, and died under symptoms resembling those of phlebitis. In his *Operative Medicine*, Velpeau, after stating that he had himself only operated in two cases, in one of which death occurred in three days, and in the other six weeks after the excision of the cervix, proceeds to remark: "A patient operated upon by M. Blandin died of uterine phlebitis; one of those that Lisfranc lost was carried off by peritonitis; others have sunk under a nervous state, the gravity of which it is not easy to explain. Up to the present time," he continues, "scarcely any one has been seen to die directly of hæmorrhage. Rust and Græfe of Berlin, Roux and Dupuytren, who have all seen their patients perish from the immediate results of the operation, do not ascribe the fatal result to this complication (hæmorrhage). Excision of the neck of the uterus, although easy and by no means severe, is nevertheless sometimes extremely dangerous and speedily fatal. However, Oslander has practised it twenty-eight times, Dupuytren fifteen to twenty times, and Lisfranc forty to fifty times, without it having caused death more than once out of every six or seven operated upon"(a).

CASES ADAPTED FOR THE OPERATION.

Since excision of the cervix uteri is an operation attended with so many chances of danger, as Velpeau exposes in the passage which I have quoted, it evidently follows that it should only be adopted in cases, and under circumstances, in which milder and safer means of cure are insufficient. The forms of disease in which, upon this principle, it seems justifiable to avail ourselves of the aid of this operation (supposing no contra-indication to be present), are, in my opinion, principally:

1st. Great morbid hypertrophy, by elongation, of the vaginal

(a) Vol. ii. p. 628.

portion of the cervix uteri. I have operated successfully in two such cases.

2nd. Corroding ulcer, when limited to the lips of the cervix, and pathologically identical with the form of lupus or malignant ulcer so well known on the face; and

3rd. Circumscribed and local forms of carcinomatous disease or excrescence, of the lips and lower segment of the cervix uteri.

Some continental surgeons, and more especially Lisfranc, advocate the propriety and necessity of excision, in various other cases besides those I have just enumerated. I have myself twice excised the part when affected by chronic induration and thickening, without carcinomatous degeneration; but I would now, most assuredly, by no means resort to it again under the same condition, as I believe that morbid state of the cervix to be quite removable by milder measures. In the case that I have alluded to as having terminated fatally, the structure of the excised cervix presented a great degree of condensation and induration, with two small cystic tumours enclosed in the morbid tissue. The symptoms attendant on this lesion had been of very long standing, and had previously broken down the health of the patient.

Certainly, however, the set of cases in which, of all others, the operation is likely to prove an occasional and important addition to our previous means of treatment, is that in which there exists local carcinoma of the cervix uteri.

Every practitioner knows that, of all uterine diseases, cancer is the one which the female mind most constantly and most justly dreads. A patient scarcely ever suffers for a length of time under any severe affection of the uterus, without her own anxieties and fears magnifying it into an instance of cancer, and investing it with all the horrors pertaining to this most fearful and loathsome malady. And certainly it is a disease which does occur sufficiently often. The female constitution

seems much more disposed than the male, to assume the carcinomatous diathesis; and the absolute number of deaths from cancer, as recorded in our own and other mortality bills, is in the proportion of two or three females for every one male that sinks under this specific form of morbid action(*a*). Some pathologists, besides, as Tanchou, Stern, and others, believe that cancer of the uterus is becoming much more frequent at the present time than it was formerly. Be this the fact or not, there can be no doubt of this other circumstance, that in consequence of the more advanced knowledge of the diagnosis and pathology of uterine diseases, the practitioner has now ample means of separating and distinguishing at once from carcinoma, various forms of uterine affection that were, not long ago, generally looked upon as doubtful or decided instances of uterine cancer, and consequently regarded with all the utter hopelessness of despair.

Fibrous tumours of the uterus, for instance, (one very common form of structural disease in this organ), were formerly very frequently confounded with cancer, but it is now well known that they have a different anatomical seat, a different pathological course, and a very different morbid termination.

I have known a patient supposed to be labouring under

(*a*) As a statistical illustration of the truth of this remark I may adduce the proportion of fatal cases of cancer in the two sexes, reported by the Registrar General as having occurred in England (excluding the metropolis) during the first five full years in which the Registration Act has been in operation.

Mortality from Cancer in England, as regulated by Sex.

Year of Report.	Total fatal Cases of Cancer.	In the Female Sex.	In the Male Sex.
1838	2304	1717	587
1839	2549	1924	625
1840	2238	1656	582
1841	2215	1692	523
1842	2356	1757	599
Total, .	11662	8746	2916

irremediable cancer of the uterus, when the disease was only a severe but remediable form of polypus. The accompanying symptoms are often very much alike in the two diseases up to the character of the discharges. "The factor of the discharges in polypus," observes Sir C. Clarke, "induces in the mind of the patient, and sometimes of the practitioner, a belief that the disease is cancer, and this is confirmed by the sickness which generally attends the disease." Sanson and Roche tell us that they have repeatedly (to quote their own words) "seen Dupuytren perform the removal of polypi, which various of the most able surgeons of the French capital had mistaken for uterine cancer, and thus render back to life patients condemned to a most certain death by those mistakes of which they had been the subject."

Various other forms of uterine disease are liable to be mistaken for cancer of this organ. In one of the first cases in which I recognized by the uterine bougie the existence of retroflexion of the unimpregnated uterus, the patient had some years previously been doomed by the highest obstetric and pathological authorities in England, as suffering under the first stage of scirrhus uteri,—the displaced fundus of the retroverted organ having been mistaken for a carcinomatous tumour. The uterine displacement was easily rectified by the use of a wire pessary worn for some months in the uterine cavity, and the patient is now in the enjoyment of the best of health. I have seen other cases of the same mistake, with this same curious but common form of uterine displacement.

Two varieties of an inflammatory (and hence of a curable form of disease), are certainly not unfrequently confounded with cancer uteri. I have now seen four cases in which patients had been condemned, as afflicted with cancer uteri, and who had each indurated, irregular tumours of the pelvis, formed by effusion of coagulable lymph, or pus, or both, into the cellular tissue situated around the cervix uteri, and forming hard, firm swellings in that locality, in consequence of the inflammatory depo-

sit of which they consisted lying above the dense pelvic fascia of this part. All of these cases have perfectly recovered, and two of the patients have borne children since the attack. The second form of inflammatory disease, which is liable to be mistaken for cancer, consists of inflammatory induration, and often ulceration, of the proper tissues of the cervix uteri. I have now had occasion to see no small number of instances, in which this chronic inflammatory affection of the cervix uteri has been confounded with cancer of the part, and where the non-carcinomatous character of the disease has ultimately been established by the ulceration and induration totally disappearing under appropriate local treatment(a).

In any case, then, of suspected cancer uteri, and where, as often happens, the local and constitutional symptoms are such as are usually described as accompanying that affection (as local pains, sanguineous and morbid discharges, general cachexia, &c.), we have always hope that a careful physical diagnosis will disclose the local disease to be one or other of those more safe and more curable forms of morbid action that I have above adverted to. And let me here add, at the same time, that as a general rule, I believe it utterly impossible to make, with any certainty, such a diagnosis by the mere rational or external symptoms only, such as the nature of the discharges, the

(a) Dr. Valentine Mott, the distinguished American surgeon, in the account which he published at New York, in 1842, of his "*Travels in Europe and the East*," inadvertently states a fact which, to every one conversant with uterine pathology, must abundantly prove, that in most cases in which Lisfranc of Paris performed excision of the cervix uteri, the operation was undertaken for simple *inflammatory* induration and ulceration of the amputated part. For after mentioning Lisfranc in very laudatory terms, Dr. Mott observes, "I am delighted to have it in my power to say, that in one of my visits, by express invitation, to examine a great many cases of a peculiar and distressing malady of the female sex, for which he had performed in previous years more than sixty operations—exsection of the neck of the uterus—he now stated to me that he readily effected a cure by a much more simple and less painful process: a fact highly honourable, I consider, to his humanity, and denoting clearly the advancing march of surgical science. *His remedy* (Dr. Mott simply adds) *is merely the application of lunar caustic to the part affected*."—(*Travels, &c.*, p. 38)

degree and character of the attendant pains, &c.; for in practice we constantly meet with uterine cases having all these symptoms well developed, without the local disease being carcinomatous; and, on the other hand, we occasionally meet with cancer of the uterus without these symptoms being present in any very marked or appreciable degree. In this, as in most other uterine affections, "the true character of the disease can *only* (as was many years ago most justly observed by Sir Charles Clarke) be ascertained by an examination."

But the question again recurs to us, supposing that we do discover, by a proper physical diagnosis, that true carcinoma of the uterus is present, is the case consequently to be looked upon as always utterly hopeless?

I believe that in forty-nine instances out of every fifty in which we find the uterus or any part of it, the seat of true carcinomatous deposit, the disease inevitably leads, sooner or later, to a fatal termination. The rapidity of its march is various, and may deceive an incautious observer by its duration. I have known death occur a few weeks after the disease first attracted the special attention of the patient; and I have had occasion to watch the course of a case, where the patient dragged on a miserable existence for seven years after the first discovery of the malady by the late Dr. Hamilton. But whilst thus fatal in almost every instance, there are still, as we have already seen, some rare varieties or forms of carcinoma uteri, that are apparently within the just range of surgical treatment. And *one* condition favouring this is the generally admitted fact, that the disease almost always begins in, and, for a time, is limited to the structure of the lips and cervix of the uterus. Professor Rokitsansky, of Vienna, perhaps the most profound and experienced morbid anatomist of the present day, in speaking of the first locality and origin of cancer of the uterus, observes: "Carcinomatous induration generally limits itself to the vaginal portion and cervix, and very often in a defined and sharp manner (*'mit einer sehr bezeichnenden weise und schärfe'*)."

In another

paragraph he remarks: "The primitive seat of cancer is always the cervix uteri, and first of all and particularly the vaginal portion. The primary appearance of cancer in the fundus uteri is limited to so extremely rare cases, that what we have just said remains one of the most fixed rules (*keine der ausgemachtesten regeln*)."

"It forms," he adds, "in this respect a contrast with fibrous and tuberculous tumours of the uterus, a contrast which also holds with regard to its involving the parts around, and its ulcerative destruction(*a*)."

In relation to the same question, we must bear in recollection another circumstance in the natural history of carcinoma uteri, granted by most of the best pathologists who have written upon this disease. "Uterine cancer," observes Professor Walshe, one of the latest and most learned writers on the subject, "is commonly primary and possessed of comparatively slight tendency to contaminate the system generally." And again: "There can be no question that the womb ranks among those organs less prone than certain others, as, for instance, the mammae and testes, to contaminate distant viscera. Among thirty-seven females, cut off by uterine cancer, and examined by M. Ferrus, seven only exhibited secondary formations elsewhere"(*b*).

In these two important respects, therefore, uterine carcinoma presents conditions favourable for surgical interference. Still, however, in order that a case may offer any chance of operative success, several conditions seem requisite:—

1st. The disease must be in an early stage.

2nd. The morbid structure must be strictly limited to the lip or lips of the cervix, or at all events be *distinctly* situated below the line of reflection of the vagina upon the cervix uteri.

In actual practice, however, it rarely indeed happens that the above combination of circumstances is met with, because, in truth, the medical attendant is very seldom called in till the

(a) *Handbuch der Pathologischen Anatomie*, vol. iii. pp. 551, 552.

(b) *On the Nature and Treatment of Cancer*. London, 1846, p. 443.

disease is so far advanced as to have passed the limits in question. In fact cancer uteri generally proceeds throughout its first stage of deposition and induration with such slow and stealthy steps, that the attention of the patient is not awakened to its presence by any particular local symptoms; and it is commonly not till the malady is advancing or has advanced towards its higher states of morbid development and disintegration, that a sudden and unaccountable loss of blood, or the unexpected appearance of some purulent or sanious discharge, or the supervention of uterine pain, first rouses the lurking suspicions of the sufferer to the nature of the fearful fate that is impending over her.

3rd. Future inquiry will in all probability prove that there are some varieties, types, or *species* of carcinoma of the cervix uteri which are much more within the pale of surgical treatment than others. I believe this last to be a most important subject of inquiry; but it is confessedly a department of uterine pathology to which (valuable as its results may be) no labourer has as yet directed his attention.

The three different cases which I have detailed present three different species or forms of carcinoma of this part. Though the materials which these three cases furnish afford a very meagre and imperfect nucleus for such an inquiry as I suggest, still they are neither without interest nor importance; and in this point of view I will here venture, in conclusion, to recapitulate the principal pathological and practical data which they seem to supply.

In the first case which I have described, the excised morbid mass had all the usual characters of cauliflower excrescence, a disease which, in its ultimate course, always takes on malignant action, whatever difference of opinion may exist as to its pathological nature in the incipient stages. The tumour removed from the second patient was an example, as I have already stated, of Muller's *carcinoma fasciculatum*; and that

from the third, was an equally characteristic specimen of the *carcinoma reticulare* of the same author.

Every pathologist will, I believe, readily grant that these are forms of malignant structure regarding the true carcinomatous nature of which there can be no rational doubt. All the three patients were extremely sunk, and prostrated by the attendant discharges, before I had recourse to the excision of the cervix uteri and the morbid excrescences attached to it. All the three were so far benefited by the operation as to recover their usual health and strength, and be again able for the duties of life. But in the last case the disease recurred after eight months of comparative health; and after fourteen months it terminated fatally. The other two patients still remain in the enjoyment of perfect health, although in one instance upwards of six, and in the other about three years, have elapsed since the period of the operation. And, as I have already stated, the first of the patients has now conceived, borne, and nursed three children since the date of the excision of the diseased parts—a sufficient proof both of the completeness of her own recovery, and of the safety of the operation, so far as regards the primary and most important of the physiological actions of the organ operated upon.

EXPLANATION OF THE PLATES.

PLATE I.—Two figures of the excised cervix uteri and attached tumour in Case I.

Figure 1.—*a a* Probe passed through the cavity of the os and cervix uteri; *b* anterior lip of the uterus; *c* posterior lip; *d d* line of incision by which the cervix uteri was removed; *e e e* rough surface of the tumour attached to the posterior lip.

Figure 2.—*a a* Under surface of the tumour; *b b* portions lacerated by the vulsellum.

PLATE II.—Two figures of the excised cervix uteri and attached tumour, in Case II.

Figure 1.—*a a* Piece of whalebone passed through the

cavity of the os and cervix uteri; *b b* tumour attached to the posterior lip; *c* anterior lip of cervix uteri; *d d* edges of the anterior lip.

Figure 2.—*a a* Piece of whalebone passed through the cavity of the os and cervix uteri; *b* tumour attached to the posterior lip; *c c* line of incision by which the cervix uteri was removed.

ART. IX.—*Cases of Popliteal Aneurism cured by Compression of the Femoral Artery, with Remarks.* By J. M. O'FERRALL, M.D., M.R.I.A., Fellow of the Royal College of Surgeons, V. P. of the Pathological Society, and First Medical Adviser to St. Vincent's Hospital.

Popliteal aneurism; compression at different parts of the artery; cure in thirty-three days.—A labourer in the Ballast department, named Cullen, thirty-two years of age, and of a healthy, brown complexion, was admitted into St. Vincent's Hospital in June, 1845. The report of that date states that he is married, and has three children, all of whom are healthy. He has always enjoyed good health, although he was formerly very intemperate in the use of ardent spirits. For the last five years, however, he has been a strict member of the Temperance Society.

Three weeks ago, while in the act of raising a heavy stone, he felt something break in his left ham. For some time subsequently he experienced no inconvenience, except a little stiffness in the joint, which was always removed by exercise. Three days ago he perceived a pulsating swelling in the ham; this gave him a shock, and he has been nervous about it since.

The following was the condition of the parts on admission: The left popliteal space was filled by a large, visibly pulsating tumour; the expansion of which is felt laterally between the tendons of the hamstring muscles. A very slight pressure

on the femoral artery obliterates the pulsation in the tumour, which then becomes flaccid and empty. There is a *fremissement* to the touch, at the upper part of the swelling; and all over its surface, but most distinct at its external edge, a well marked *bruit de soufflet*. The integuments of the leg are slightly discoloured, and the superficial veins evidently enlarged. When standing erect he rests upon the outer edge of the foot of the affected side, and the heel is raised about half an inch from the ground. The arteries of the foot cannot be distinctly traced. On examining the heart, the first sound is long, and along the aorta is rather rough; impulse feeble compared with that of the artery at the wrist: the sounds of the heart very audible along the right side of the chest. Tongue clean; urine normal; skin hot; pulse 90, full and jerking; but these characters are not increased by elevating the arm. Ordered to be bled twelve ounces, and to take ten drops of tincture of digitalis three times a day.

June 25th.—Pulse 84, full and jerking; skin cool; feels more comfortable, and has slept.

The instrument is applied above the middle of the thigh. The superficial veins immediately became very much distended, and the whole limb assumed a purple colour. In half an hour the temperature of the foot was sensibly lower than that of the other side. The pulsation in the tumour was rendered very feeble. The pressure was now relaxed, and the parts allowed to rest; the limb was elevated on an inclined plane. The superficial vessels nearly disappeared, and the instrument was re-applied, so as to lessen, but not obliterate, the pulsation in the tumour. The superficial veins swelled considerably, but certainly much less than when the limb was horizontally placed; he stated also that he felt less numbness in this posture. The temperature of the foot, which is wrapped in wool, is hardly lower than that of the other.

June 30th.—From the date of the last report the daily occurrences have varied little: the curve of the instrument has been

altered. After an hour or two, the counterplate of the instrument was found to have rolled, and the pulsation to have returned in full force. The instrument was readjusted, but the same displacement occurred again. The veins of the leg, however, are not now swollen, nor is the whole of the limb rendered so full while the pressure is kept up. This day a long splint was applied on the outside of the thigh: over this, the plate of counter-pressure was laid, and the pressing screw arranged as before. The patient expressed himself much relieved by this plan, which divided the pressure along the whole outside of the thigh.

July 1st.—The instrument has been again altered, and maintains its position longer now than before the splint was applied; it still, however, becomes displaced after some time. The size of the tumour is manifestly diminished.

July 10th.—The pulsation still returns occasionally, but in less force, and the dimensions of the tumour are lessening. He was directed to keep a weight of three pounds over the artery in the groin, as long as he found no inconvenience from it; he at once said he could bear it very well, and it commanded the artery perfectly. The instrument below was relaxed; the pulsating vessels, one at each side of the knee, are beginning to be felt.

July 20th.—The substance of the daily reports is, that the pressure, sometimes at the groin by the weight, sometimes lower down by the instrument, is found to restrain the pulsation for a longer time than before, and that when it returns it is less vigorous. The size of the tumour is reduced by one-half; when the pulsation is completely prevented it feels very small and solid. The action of the weight at the groin is preferred by the patient, as he can keep it in its place with his hands, and it creates less annoyance than the instrument.

July 28th.—He says he kept the weights on all night; there is no pulsation in the tumour this morning when the pressure is removed. Tumour in the ham is reduced to the size

of a walnut; a small vessel is felt pulsating along its surface; but there is no movement at either side of this slender branch.

From this time he went on well, and was soon allowed to sit up. The tumour progressively diminished in size, and, when he left the hospital in September, it was scarcely to be traced as a small, firm cord. The small branch alluded to could be felt lying loosely over it.

At this time his health was tolerably good, for he had been allowed a generous diet early in the treatment, on account of feeling very nervous, and losing sleep. The digitalis had also been soon discontinued for the same reason. When leaving the hospital the femoral artery on that side could be felt less vigorous than the other as far down as the beginning of the lower third of the thigh, where it was lost. No trace of the anterior or posterior tibial arteries could be discovered; he could extend the limb and walk with tolerable ease. The roughness along the aorta was no longer perceptible: his pulse was 80, full, and not jerking as before.

Popliteal aneurism; compression at the groin; cure in eleven days.—Christopher Delany, a labourer, thirty-seven years old, married; admitted into St. Vincent's Hospital, April, 1846, with extreme pallor of the face, and all the physical signs of anæmia are easily detected; his habits were formerly intemperate. He states that up to the date of his present complaint he always enjoyed good health. About twelve months ago he was seized with severe pain in the back and hips, which he ascribed to cold: but it did not prevent him from attending to his labour in a chemical factory. About December last the pain became much more severe, and occasioned such a degree of weakness in his legs, as to cause him frequently to tremble on his knees while rolling a heavy barrow. He obtained medical advice from several sources, and was cupped, leeches, blistered, and had warm baths, but all without relief. From this time he suffered from increase of debility, with palpitation of the

heart. His attention was now directed to what he called a kernel, situated in the ham of the right leg, for the exact origin of which he could not account. It was discovered that he had a pulsating tumour, and he was then sent to this hospital.

On admission he complained of a severe and constant pain in the back, extending to both loins, and most severe at night. On examining the right leg, a pulsating tumour about the size of a hen's egg was found in the popliteal space. Pressure on the tumour rendered it quite flat, but on relaxing the pressure, it refilled with a distinct diastolic pulsation. The stethoscope applied over the swelling, detected a well-marked bellows murmur; on compressing the femoral artery at the groin, the pulsation ceases, and the tumour becomes flaccid. There was no evidence of abdominal tumour. His skin was cool, pulse rather feeble, and about 80; he was nervous and anxious. There was no difficulty in the diagnosis, which was confirmed by the opinions of Dr. Wilmot and others.

After the exhibition of mild aperients he was directed to take three grains of extract of hyosciamus at night, and five grains of the saccharated proto-carbonate of iron three times a-day.

On the 21st of April the new pelvic instrument, to be hereafter described, and consisting of a concave iron thigh-plate, from which the curved arm, supporting the screw in front, was made to spring, was applied, and the femoral artery was compressed against the pubis, but with very little force. No pain or venous turgescence followed this process. Just as the screw was about to be tightened, pressure was made below the aneurismal sac with the fingers, and maintained for about a minute, thus keeping the sac in a distended state; the pressure at the groin was next slightly relaxed, so as to admit a very feeble current through the vessel, and he was allowed to rest. This condition remained unaltered for about two hours,

when the pulsation in the sac was found to have returned. A turn or two of the screw restored the parts to their quiescent state.

April 24th. Hardness of the tumour is distinctly perceptible, and the force and extent of the pulsation is obviously lessened in it. The dose of iron was increased. From this time matters went on improving until the 3rd of May, when the report states that all diastolic pulsation had ceased. A narrow line of filiform pulsation had become perceptible along the surface of the tumour, giving the impression to the finger as if a slender stream still passed through the proper channel of the artery. The tumour was quite firm, and reduced to one-half its original size. The instrument was now finally removed; the contents of the sac being evidently solidified, and it was deemed unnecessary to continue any further restraint upon the circulation.

The patient remained in hospital until the 5th of June, having been for some time before allowed to walk about and use the limb. The dose of iron had by this time reached 45 grains, three times a day. His lumbar and dorsal pains had nearly altogether disappeared, and his health was much improved. The tumour at this time was reduced to the size of a small almond kernel; the filiform pulsation was still perceptible, but he had full use of the limb.

On the 20th of July this patient was brought to the hospital again for examination, which was made with the assistance of Doctor E. Hartshorne, of Philadelphia, and in the presence of several of the pupils. His general health had continued to improve; the physical signs of the anæmic condition were still perceptible; the pain in his back was latterly felt, but in a very slight degree. His occupation in a chemical factory is laborious and unhealthy, obliging him frequently to sit up the entire night. On examining the limb, the femoral artery was distinctly traceable to the lower extremity of the middle third of the thigh. In the ham the same minute filiform

pulsation was perceptible. In the original situation of the tumour there was now only a narrow induration, about the size of a goose quill; no trace of the anterior or posterior tibial arteries could be detected. A small twig could be felt running transversely over the inner condyle of the femur.

OBSERVATIONS.

It will be remarked that, in the phenomena and circumstances of those instances, there are certain points of difference; there is also an important difference in their medical treatment, as well as in the mechanism and point of application of the compression. A short analysis of the cases, in these their practical relations, will, perhaps, be interesting to those who are inclined to adopt the safest of the methods yet proposed for the cure of popliteal aneurism.

In the case of Cullen, the history of the production of the aneurism, was favourable to the hope that the arterial system might be otherwise free from disease. His employment as a heaver of ballast exposed the limb of the affected side to the consequences of repeated flexions, followed by sudden and forcible extensions, and this more than a thousand times daily. In ordinary, the right leg is that used for this effort; Cullen was left-handed, and therefore employed the left leg in the manner described.

His general state was that of vascular excitement; his healthy brown colour afforded no grounds for supposing the blood to be in a morbid state; but the peculiar jerking pulse could not fail to direct attention to the central organs. It was the kind of pulse, which, when found in connexion with an external aneurism, has been called by surgeons the aneurismal pulse, but which is, in reality, often the symptom of an undiscovered lesion of the aortic valves. A very careful physical examination of Cullen's chest, however, left no doubt on my mind as to the condition of the heart; there was no evidence of disease in that organ, and its sounds and impulse were actually feeble in

comparison with the arterial pulse. The disturbance was principally in the arterial system, and, when connected with the hot skin, suggested, if not the diagnosis of an arteritis, at least the propriety of venesection, and a short course of digitalis.

In this case the various instruments were applied at points below the origin of the profunda. Each application of the pressure was followed by venous congestion of the entire limb, and, at first, by numbness and decrease of temperature. These phenomena gradually gave place to those of a new circulation, but the duration of the treatment extended to thirty-three days.

I examined this patient in the month of August last (twelve months after the cure), in the presence of the class. His health was excellent; he had practised and acquired the use of the right hand, and could use either indifferently, so as to rest the opposite limb. The aneurismal limb was quite healthy in appearance; the ham was not fuller than the opposite. Careful and deep pressure gave the idea of a thickening about half an inch long in the former situation of the aneurism. The femoral artery was perceptible to the middle of the thigh, where it was lost. No pulsation could be detected in the situation of the anterior or posterior tibial arteries, a fact, it will be remembered, observed on his admission into hospital. A small twig crossing the ham, and another over the inner condyle, were all that could be traced; there was no abnormal sound in the aorta or heart.

In the case of Delany, some of the phenomena were different from those of Cullen. Delany was pale and anæmic in appearance; there was no heat of skin; he complained of palpitations, but there was no evidence of cardiac disease, while the physical signs of anæmia were distinctly marked; he was therefore put at once on a chalybeate treatment. The long persistent neuralgia of the lumbar region led to a careful scrutiny of the abdominal aorta, but no sign of aneurism could be detected there. In this case the pressure was applied at one

point only, and that very high up, near Poupart's ligament. The construction of the instrument was altogether different from that usually employed. Very little force was required to compress the artery, and no venous turgescence ensued. The cure was established on the twelfth day.

The value of constitutional measures in these cases is not sufficiently insisted on, and yet I believe it will be found an important element in the treatment. If it were made a rule to institute a course of digitalis, with low diet, in every instance, as an aid to the compression, I apprehend that mischief would be frequently done, and the cure of the aneurism retarded. The cases here related may be regarded as examples of two very different classes of patients labouring under aneurism, and requiring medical treatment of a very opposite description. The blanched and anæmic Delany would have been as improperly treated by digitalis and venesection, as the brown and plethoric Cullen would have been by the preparations of iron. Both presented evidence of disturbance in the arterial system, but the cause of that disturbance was clearly aggravated in the one case by a morbid condition of the blood, and in the other by an irritation in the vessels themselves, approaching to the character of arteritis. The indications, then, were different and opposite, and in either case were justified by the results of the medication employed.

The principle upon which the impediment to the current through the artery is to be effected has been long since laid down by the late Professor Todd, and is now generally adopted in this country; the circulation is to be moderated, but not suddenly arrested, and time is to be allowed for the establishment of a collateral circulation. The history of this practice is well described in the last Number of this Journal, in an interesting paper by Mr. Wilde. The claims of the different operators to the several modifications of the apparatus being there so well and so recently stated, I have thought it unnecessary to reiterate them in this place.

The exact point of its course, in which it is best to make compression on the artery, seems to be still unsettled. In Dr. Harrison's case much relief was obtained by shifting the pressure from one part of the vessel to another. This expedient is rendered necessary by the pain experienced from the continued pressure on one point, and by the contusion or fretting of the superincumbent parts, which generally results from the instruments in common use. The integuments do not bear well the force required to compress the artery. These inconveniences resulted from a two-fold defect in the instrument: 1st, the impossibility of regulating the angle of incidence of the compressing force; and 2ndly, the want of a steady and un-deviating point of counter-pressure. Both these defects are remedied by Mr. Read's instrument, to be presently described.

But, admitting that we are in possession of an instrument by which compression may be effected without injury, or even without great inconvenience to the patient, is it a matter of indifference at what point the pressure should be made,—or its locality may be changed from one point to another, without any physiological difference in the result? I was led to this consideration by remarking that venous turgescence ensued in very different degrees in different cases, and that this congestion seemed to bear some relation to the distance from Poupart's ligament, at which the pressure was applied. In Cullen's case, for instance, the force was applied at different points of the artery, below the origin of the profunda, and turgescence of the superficial veins ensued to a degree imparting a purple hue to the swollen limb. In Delany's case, on the other hand, the force was applied at one point only, just below Poupart's ligament, and no venous congestion was remarked.

In considering the anatomy of the parts, it appears very probable, that when compression is made high up, the vein may be avoided, while such an exemption would be quite impossible lower down, where the vein slips behind the artery, and must of necessity receive its share of the pressure. The

possibility of avoiding the vein, while compressing the artery at the groin by the finger, may be ascertained by any one who takes the trouble to make the experiment with care. I have demonstrated this repeatedly to the class, and shewn the alternate interruption to the current through the artery, and the turgescence of the saphena, made at will, according as the finger was shifted from one vessel to the other. The experiment was then made with Read's instrument, and the artery compressed by placing a narrow compress of lint, with adhesive plaster, along its course at the groin, and thus guiding the pad of the screw to the proper point, without any interruption to the current through the vein.

The only objection to making the pressure high up, is the interference with the profunda artery. This might be a fair objection, if the practice was to interrupt the current suddenly and completely, as is done when the ligature is applied. But it can have little weight when we consider, that the passage of the blood is moderated, but not suppressed, at first, and that even when the cure is effected, the blood pursues its usual course for some distance down the thigh.

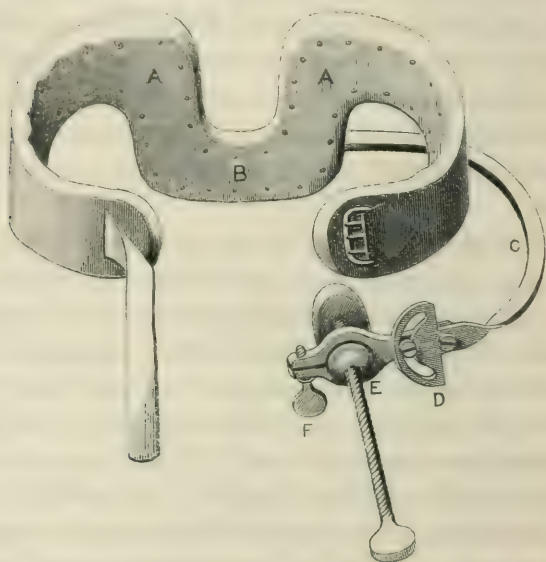
Another reason for making the pressure high up and avoiding the vein, is afforded by experience. In a case lately dissected, I have been assured that the vein compressed, together with the artery at the apex of Scarpa's space, was found thickened for about an inch of its length. It had acquired the solidity and thickness of an artery at this place, and retained its patulous circular figure on section. Thus a local phlebitis had followed the application of the pressure at this place, and with our knowledge of the insidious nature of phlebitis, however limited at first, we should not underrate this pathological reason, in addition to those already adduced, for preferring pressure at the groin, where, with some little care, it is possible to confine it to the artery.

It is obvious to the least reflection, that effectual pressure at the groin cannot be made in the direction of a line dropped

perpendicularly to a limb in the horizontal position. It must be made in a direction upwards and backwards in order to compress the artery against the pubis. And as the angle at which this force is to be directed will change with every new subject, or in the same subject at different times, it becomes necessary to devise a power of altering the inclination according to circumstances. This power is afforded by Mr. Read's ball and socket joint, while the quadrant adjacent to it admits of the removal of this joint to a suitable position from which it is to act.

Much pains have been bestowed upon the mechanism of the splint plate, which was to lie at the back of the thigh, and to give origin to the arch of the instrument, as well as to support the limb. This counter-plate or splint was made short or long, and the surface was curved or angular; but it was still found to roll upon the limb, and consequently to displace the pad or compress upon the vessel. I have long thought that the pelvis was the only suitable *point of support* for the instrument, and that any contrivance which attempted to derive this support from the thigh, or to compress the artery towards or against the femur, would be liable to delay or disappointment. Read's instrument fulfils this intention admirably. It deserts the always moveable femur as a point of support, and grasps the pelvis firmly in the manner of the hernia truss. If to this principle of making the pelvis the counterpoint, be added the plan I propose, and which succeeded in eleven days in the case of Delany, of making the pelvis always the point against which the artery is to be pressed, and thus avoiding the vein, we shall, I believe, have the fullest advantage derivable from mechanical aid. This arrangement renders the operation of the instrument independent of the disturbance incidental to every change of posture of the thigh, while it allows us to avail ourselves of one of the most valuable of the *auxiliaries* to compression, namely, an elevated position of the limb, favouring the return of the venous blood.

The annexed sketches will, perhaps, render the construction and mode of application of the apparatus more intelligible.



In the foregoing wood-cut—A, is the band, consisting of a thin iron plate, covered with leather, and well padded on its concave side; B, a notch in the band, which prevents the latter from coming in contact with the spine of the sacrum; C, a semi-circular steel arm attached to the back of the pelvic band, and capable of being adjusted to the right or left side as the case may require; D, a quadrant by means of which the screw portion can be moved in different directions; E, a ball and ring joint; the ring can be made to grasp the ball by means of a screw; F, a thumb-screw for closing the ring.

When the pelvic apparatus was first made it was found to irritate the skin covering the spine of the sacrum, as the patient lay constantly on his back; the notch marked B was then made, and all pressure on the spine thus completely avoided.

In the following sketch the limb is represented with the in-

strument in its place. The pad is directed upwards and backwards, towards the pubis.



A few remarks may now be made on the auxiliaries to compression.

AUXILIARIES TO COMPRESSION.

Bandaging.—General and moderate compression of the entire limb by a light bandage has been proposed as auxiliary to compression, in the hope of lessening the turgescence which has been generally remarked. I have not employed this expedient, because I could not believe it to be proper to oppose any restraint to the circulation through new and collateral arteries; and, secondly, because if it was intended to obviate the venous congestion, it does not apply itself to its cause. And this congestion may be more effectually modified by *position*, or may be altogether prevented by the plan of avoiding the vein, already described.

Position,—as an auxiliary, is not, I believe, alluded to in

communications on this subject. I have reason to think that a moderate elevation of the foot was useful in the cases in which I employed it. If the artery be compressed against the pubis it is easily accomplished, for in that case a varying position of the limb has little or no disturbing influence on the instrument. Everything which favours the return of the venous blood would appear calculated to encourage the collateral circulation, by keeping the capillaries always in a fit state to receive a new supply.

Galvanism—by acupuncture has been proposed as an auxiliary to compression. I cannot recommend this agent: first, because I believe it is *not safe*, and secondly, because I believe it is *not necessary*. It is not safe, since erysipelas may follow, and may even prove fatal. Erysipelas may, it is true, follow any punctured wound, or any wound, in an unhealthy constitution; but this would be no defence of the method, unless it could be shewn that a cure was impossible without it. And when we consider that a galvanic current is made to pass through the puncture in this case, and that the constitution is, in a large proportion of aneurismal patients, unhealthy, we should be slow to adopt a measure of this kind. It is *not necessary*, because, even when the pressure was made low down in the thigh, and with an imperfect instrument, perseverance always effected a cure, without compromising the safety of the patient.

There is an auxiliary to which I have but slightly adverted, but which I employed on several occasions in Delany's case, and, I am persuaded, with advantage. This is a *momentary compression* with the fingers, at a point below the aneurismal sac, and just before the instant when the screw above is about to be tightened. I was led to adopt this plan from the consideration, that although the artery was firmly compressed, and the current stopped, there was really not material for a large clot in the sac, and consequently very little addition was made to

its solid contents. It occurred to me that by interrupting the current for a moment by pressure below the sac, and then preventing the current from above, that the sac would be at the same time full of blood, and in the desired state of repose. I believe it contributed something to the speedy solidification which occurred in Delany's case, and I therefore suggest its adoption to others for their consideration.

It is, I trust, unnecessary to argue the comparative merits of the methods by ligature and by compression. The treatment by compression may be now considered as established; there is no other mode under which so many cures have followed each other in uninterrupted succession; there is no other which for its safety equally deserves to be pressed upon the attention of the profession. The operation of John Hunter had a long day of dominion, if not of success; and none of the scientific foundations of that great master of British surgery have been more lauded in systematic works. In the absence of a safer mode, and compared with those which preceded it, Hunter's operation was entitled to a high place among the improvements of his time. But, strange as it may appear, there was no operation which the practitioner, impressed with a due regard for human life, approached with more reserve. It was liable to accidents from inexperience, but it was also surrounded by dangers which neither skill nor caution could avoid. It required experience to estimate the peril, for the statistics of the operation were defective, and afforded little aid to the beginner. Our periodicals were enriched with the details of successful cases, while the rate of mortality was an unknown quantity. The deaths were only whispered in conversation, while the recoveries were recorded in triumph. The man of experience knew all this, and his reserve increased with his experience. He knew that secondary hæmorrhage was of frequent occurrence; that phlebitis had its victims; and that death occasionally took place from gangrene or suppurative inflammation. No wonder, then, that the advent of a new principle of treatment,

exempt from dangers such as those, should be welcomed by the cultivators of rational medicine ; and it is in this spirit that it has been especially adopted by the professors of the healing art in this country.

ART. X.—*On the Efficacy of Electricity, Galvanism, Electro-Magnetism, and Magneto-Electricity, in the Cure of Disease ; and on the best Methods of Application.* By M. DONOVAN, formerly Professor of Chemistry to Apothecaries Hall.

CIRCUMSTANCES unnecessary to mention have lately induced me to read a number of works relative to the diversified agency of electricity. In the course of my readings, I met so many accounts of successful applications of this power to the treatment of diseases, that I felt impressed with a conviction of its importance as a therapeutic agent. Such statements, promulgated by persons of high character for professional attainments, veracity, and private worth, left no doubt on my mind that this method of treating diseases has been of late years undeservedly neglected, I might indeed say abandoned, so rarely do we now hear of its application, in comparison with the frequency of its employment in former times.

These convictions acted as sufficient incentives to my making a search through some hundreds of volumes, with a view of collecting, abridging, and arranging the most striking cases of cures effected by the agency in question. I thought that by bringing them to the recollection of practitioners of medicine, and placing them in a succinct yet intelligible form, I might contribute something towards the restoration to public favour of an agent which has already done good service to mankind, and, under proper management, may yet do more.

I know that one of the causes which long since led to the disuse of ordinary electricity, at least in this country, was the inefficiency of the means of employing it. A notion prevailed that as a small electrical machine is capable of charging

a Leyden phial to such an intensity as to give a powerful shock, there is no use in using larger, especially as those of great power are very costly, and liable to accidents. The shock, however, is but one mode of conferring the benefits of electricity; the spark and its various modifications can in many cases be employed with better effect, and these are only valuable when communicated by a machine of the highest capabilities. Even the *aura*, although the most delicate form of application, is valueless unless it issue from a copious source of supply.

The difficulty of managing large electrical machines has also mainly contributed to prevent their employment. They are so detrimentally affected by unfavourable states of the weather, that without pains and skill on the part of the operator they cannot be made to act sufficiently well when the atmosphere is damp or cloudy. This uncertainty has caused a preference for galvanic batteries, electro-magnetic machines, and magneto-electric machines, the prevailing opinion being that in all these instruments the agent is the same. This is not the place to advert to a question of such magnitude: but it is certain that the effects on the animal economy of these surprising contrivances are totally different. They are excellent in their respective places, especially when proper combinations are made, but they do not possess properties in common with the ordinary electric machine.

As an instance of the uncertainty of electric machines in unfavourable states of the weather, I may mention, that a powerful one in my possession, the cylinder of which is four feet in circumference, mounted on four glass pillars, with a positive prime conductor, divisible into two parts, together exposing about thirty square feet of metallic surface, could only be made to act very well during three days of the months of July, August, and September of the present year. Even on these days, the longest direct spark procurable was seven inches, although the machine is capable of affording one nearly twice as long, and of such intensity as to be felt in the

wrists and even arms, and to resemble a smart shock more than a spark. Two and three inch sparks were easily enough obtained in all states of weather.

Another cause of the abandonment of ordinary electricity, as a remedy, is, that it has been used by medical practitioners as a last resource, as a measure to which a chance of success ought to be given, after all modes of cure by medicine had proved inefficacious. Under such circumstances, it is no wonder if failure were the more frequent result. Electricity is not a worker of miracles, but an useful adjuvant to the art of the physician, which, to be employed with most advantage, ought to be assisted with such medical treatment as the exigencies of the case require. It is by cooperation with other modes of cure that the powers of this subtle fluid, adequate as they are to reach deep-seated disease, can be applied with all the good effect of which they are capable. And it is to be kept in mind that one great advantage of electricity, as a therapeutic agent, is, that it interferes with no other; and that its employment may be concurrent with any plan of medical treatment which may be deemed necessary.

Finding, as we do, so many cases recorded of the success of electricity in extreme diseases, it is easy to imagine how numerous have been the failures, owing to insufficient means, and how much the frequency of these must have contributed to the abandonment of that mode of cure. It could scarcely be otherwise when we know that the application of medical electricity frequently fell into the hands of makers of electrical machines, and of humanely disposed and well-meaning persons who possessed the instruments, but knew little of the proper modes of employment. At that time, the chief writers on electricity were opticians, whose object, as is quite apparent from their works, was the sale of their various articles of apparatus, which were numerous, beautiful, and illustrative, although now no longer seen.

As the length of this essay precludes the possibility of its

being inserted entire in the present Number, I shall in the portion now given, confine myself to observations on the medical employment of ordinary frictional electricity. And as I have been able to give only the most condensed notices of such a number of cases, I have generally subjoined references to the sources from which I drew my information, or where a fuller report may be had.

The first attempt at rendering electricity available in the alleviation of human suffering was made by Kratzentein, in 1744, who tried it in several diseases. Shortly afterwards, a number of works were published on medical electricity, containing, with some truth, many fictitious and marvellous accounts: all this might be expected.

Signor Pivati, of Venice, published, in Italian, an *Essay on Medical Electricity*, in which he narrated many wonderful things. He included balsam of Peru in a glass cylinder, so closely that there was not the least smell from it. With this cylinder he electrified a person who had a pain in his side; the man went home, went to bed, slept, sweated, scented the bed, his clothes, and even his hair, to such an extent that even the comb smelt of the balsam. Another person, electrified in a similar manner, became in half an hour more lively and cheerful than usual: the company perceived a smell for which neither he nor they could account, until at length he discovered that it proceeded from himself. By electric exhalations Pivati cured amenorrhœa. He had also the honour and pleasure of curing Donadoni, Bishop of Sebenico, aged seventy-five years, of gout. The Bishop came with his physician and friends; the disease had stiffened his fingers and knees so that he could not bend them; he was obliged to be lifted into bed every night. Pivati filled his cylinder with discutients, and with it electrified his reverend patient. In a few minutes the Bishop felt an unusual commotion in his fingers; he was relieved; he opened and shut both his hands, and gave a hearty squeeze to one of his servants; he rose up, walked, smote his hands to-

gether, helped himself to a chair, sat down, walked down stairs with the agility of a young man, and was so amazed that he thought it must be a dream. In the same manner a lady aged 60, with fingers swollen by the gout during six months, always trembling, and with one arm convulsed, was fully relieved by two minutes' application of the medicated electricity(*a*).

Pivati proposed to electrify his patients by cylinders filled with medicines of all kinds, as diuretics, antiapoplectics, sudorifics, &c. These medicated cylinders were named *intonacatures*(*b*).

The Abbé Nollet was so amazed at these wonderful things that he paid a visit to Pivati in Italy, and questioned him pretty sharply concerning the statements he had published. Pivati, it appears, could not stand the cross-examination: he confessed to the Abbé that as to the odours he had never transmitted them but twice, although he made many trials. When asked to produce the successful cylinder, he said it was broken, and he could not procure even a bit of it. The Abbé then took him to task about the Bishop of Sebenico, but was informed that the poor bishop was as bad as ever. Several other exposures were also made(*c*).

All these wonders, sufficiently startling even to ordinary credulity, were, nevertheless, adopted by Professor Winkler, of Leipsig, who added a few of his own. He included sulphur, and, in another case, cinnamon, in a glass sphere, electrified it, and filled the room with the vapour of each, which, in the case of the cinnamon, he perceived in his mouth even the next day, Dr. Bianchini's "*Recueil d'Experiences faites à Venise*," was mainly instrumental in exposing these absurdities.

Dr. Giuseppe Bruni, one of the principal physicians of Turin, about this period reported that at Bologna a man deaf of one

(*a*) Philosophical Transactions, 1747, and all the foreign publications of the day.

(*b*) Rozier. *Observe. sur la Physique*, 1771, p. 95.

(*c*) *Hist. de l'Academie des Sciences*, 1749, p. 18.

ear, having a continued noise in it, and occasionally suffering violent pain, was electrified by Dr. Verati, sparks being taken from the neighbourhood of his ear; the parts were reddened as if by a blister; the patient passed the night with less pain and noise, and was perfectly cured of his disorder.

Dr. Bruni then relates some other cases of cure, all of which are quite probable, but he shakes our confidence in his own judgment by stating that a physician at Rome lined a cylinder with purgative matter and electrified a gentleman with it, who immediately found on the spot the same effects as if he had swallowed the cathartic. If this happened, it must have been fright that acted.

The Abbé Nollet, finding that perspiration was produced in animals by electricity, concluded that when it becomes necessary to quicken the circulation, and throw off a greater quantity of perspirable matter, electricity must be of use. Van Marum's experiments on this subject led to the conclusion that there was, on the contrary, a diminution of perspiration, yet Nollet's results have been obtained by other experimenters, and the fact still remains in doubt. In the same manner the acceleration of the circulation has been affirmed and denied, a contradiction which seems explained by the experiments detailed by M. Gerhard in the *Memoirs of the Berlin Academy* (1772), who found that the number of arterial pulsations in a given time is sometimes doubled, and sometimes greatly diminished, probably according to the nervous impression made on the mind. On the whole, he thinks the more general result is an acceleration by about one-sixth.

Although medical electricity had, about the middle of the eighteenth century, made great progress in Italy, France, and Germany, little was known of it in England, yet it at length began to be practised. In many cases, it was found to be useless, but there is reason to think, from the statements published, that the power was too feeble, or improperly applied. Dr. Cheney Hart, by giving shocks to a girl who had a paralytic

arm, rendered her universally paralytic, and, when her disease was brought back by medicine to its original state, she again relapsed into universal paralysis when electricity was resumed. Dr. Hart, who seems to have been by no means a favourer of the new remedy, reports, however, that a woman whose left arm had been for some years paralytic, without feeling, motionless, and cold, notwithstanding the employment of all modes of cure, was frequently electrized by taking sparks, "and the greatest blows (shocks) given to it." In about eight or nine days her arm grew sensible of pain and warmth, and she had a little power of moving her fingers, being able to grasp anything while her arm hung down. In three or four weeks she had got some little strength of her arm, and could lift it half-way to her head. But her fear of the sparks and shocks made her resist, and she chose, as she said, to remain paralytic rather than undergo such operations any more.

In all the cases of electrization in paralysis, reported by Dr. Franklin, service was done for a while; warmth began to be felt in the limb; a prickling sensation was also described, the affected limb acquired more and more the power of motion; but, after the fifth day, the patients, not perceiving any further improvement, and now dreading the shocks more than ever, became discouraged and went home, although the very circumstance of their feeling the shocks so severely was a proof of the amendment. He used, as I imagine, too high a power, transmitting at once the combined charge of two jars, capable of holding six gallons each, and having each three square feet of coated surface; it is probable that he thus defeated his object. Besides this, he drew strong sparks from the part and side affected. He alludes to a cure then effected in Scotland by giving each day 200 shocks from a phial(*a*).

The following case is well attested, and deserves attention. A woman aged 33, whose father had died of paralysis, was attacked with the same disease, which sometimes affected

(*a*) Philosophical Transactions, 1757.

her in the left arm, and sometimes in the leg of the same side; and although these parts lost all power of motion, they retained sensibility; but after a while she lost all sensation of the left side. Becoming worse, her head shook, her tongue faltered, her left eye became so dim that she could not distinguish colours with it; and she was often seized with universal coldness and insensibility, so that sometimes it was doubtful whether or not she was dead.

In this state the Rev. Mr. Brydone determined to try electricity. He therefore communicated several very severe shocks, which seemed to raise her spirits; she said she felt a heat and prickling pain in her left thigh and leg, which gradually spread over the whole side, and after undergoing the operation a few minutes longer, she "cried out with great joy that she felt her foot on the ground." The electric machine producing such extraordinary effects, the woman submitted to receive above 200 shocks, the consequence of which was, that the shaking of her head gradually lessened, until it entirely ceased; she was able, at last, to stand without support, and on leaving the room forgot one of her crutches. Next day, being electrified as before, her strength sensibly increased; she walked easily without a stick, and could lift several pounds weight with the hand that had been paralytic. The experiment was repeated on the third day, by which time she had received, in all, upwards of 600 severe shocks, when, declaring herself to have as much power on the left side as the right, she was pronounced cured. This account was attested by herself, by the minister of Coldingham, in Berwickshire, and by a letter from Dr. Whytt to Dr. Pringle(a).

The fame of this remarkable recovery soon induced others to seek relief at the hands of the Rev. Mr. Brydone. A woman aged 30 had lost all feeling and power of the left side, so much so, that she was brought to him in a cart. After re-

(a) *Philosophical Transactions*, vol. I. p. 586.

ceiving 600 shocks in the space of two days, she recovered the use of her side, and set out on her journey on foot.

Mr. Brydone adds, that several persons had been relieved of rheumatic pains by electrizing the parts affected. A woman was cured of deafness of six months' standing, who, the first day of her application, could scarcely hear a word spoken; but in five days, after receiving several shocks in the ear, seemed to be perfectly cured(*a*). These cases were attested by the patients, and by the curate of the parish.

M. Jallabert, Professor of Philosophy at Geneva, struck with the wonderful effects of the Leyden phial, then newly discovered, determined to try it as a remedy. His patient was a locksmith, aged fifty-two, whose right arm was paralytic for fifteen years, owing to the blow of a hammer; with contraction of the fingers, total immobility of the thumb and index, and distortion of the wrist. Shocks were first tried; but these producing diarrhœa, sparks were drawn from the parts affected. By a continuance of this treatment for about two months, the man was enabled to resume his ordinary occupations. The Professors of Philosophy at Geneva, and many members of the Colleges of Physicians and Surgeons, were witnesses of the treatment, which was thus authenticated.

Jallabert then published his *Experimenta de Electricitate*, in which he collected all the facts known, and described several cases successfully treated by this agent. This work excited the attention of all Europe, and stimulated physicians to make trials of the new and wonderful remedy. I have never been able to see the book; and all here given is taken from the *Nova Acta Eruditorum Lipsiæ*, 1756, and the *Encyclopédiè Methodique*.

An essay by Lassonne soon followed; it contained an epitome of cases treated at the Hôtel des Invalids. It would be in vain to attempt to give an account of the many works on

(*a*) Philosophical Transactions, vol. l. p. 695.

this subject, published about this period. M. Gerhard's Essay on the effects of electricity on the human body, and the cautions to be used in its application, should be read by all medical electricians. It is to be found in Rozier's *Observat. sur la Physique*, &c., tom. xiv. p. 145.

A number of recoveries were effected by M. Sauvages, of the Academy in Montpellier; and such was the reputation of his success, that the neighbouring population considered these cures as an affair of witchcraft, and the operators were obliged to have recourse to their priests to undeceive them(a).

Dr. Bohadtech, a Bohemian, who wrote a treatise on medical electricity, gave it as his opinion, that hemiplegia seemed to be the most proper object of electricity. Mr. Brydone effected a cure of this disease, of two years' continuance, in three days. Many cases of paralytic limbs were successfully treated about the same time. In some other cases it was useless, and in one positively injurious.

A woman who laboured under deafness for seventeen years was restored by Mr. Wilson, in a short time, by electricity; but in six other cases he was unsuccessful(a).

Mr. Lovet, in his essay, declares that the toothach is generally cured instantly (by the shock?); indeed, he scarcely remembered any one who complained of its raging a minute after the operation.

The celebrated Wesley, who practised medical electricity, declares that he has scarcely ever known an instance in which shocks all over the body have failed to cure a quotidian or quartan ague.

Dr. Himsel, of Riga, records the case of a young man, aged 20, who had been afflicted with palsy of the right arm for fifteen years; all the fingers of the paralytic hand were disabled, and the hand itself was bent towards the elbow, so as to form a right angle. After being subjected to electrical shocks for about six weeks, he could extend or contract his fingers at plea-

(a) Priestley's *History of Electricity*.

sure, and move his arm backwards or forwards, and raise a forty pound weight three feet from the ground. He was also able to write his name, which he could not do for fifteen years before.

The most remarkable instance of cure of paralysis by electricity, on a very large scale, occurred in the following awful and providential manner.

“Mr. Samuel Leffers, of Carteret county, in North Carolina, had been seized with a paralytic affection which fixed itself on the face, and principally on the eyes. As he was walking in his chamber, a flash of lightning struck him down senseless, and he came to himself at the end of twenty minutes; but he did not recover perfectly the use of his legs for the rest of the day and night. The next day he found himself quite recovered, and he sat down to write to one of his friends an account of what had occurred to him; his letter was very long, and he wrote it without the help of glasses. Since then the paralysis has never returned. Mr. Leffers thinks that the same shock which restored his sight, has, on the other hand, injured the delicacy of his hearing. The article from which we have extracted this case is from the pen of Mr. Olmsted, Professor of Chemistry in the college of North Carolina.”(a)

The above is an important case. Here is a simple, naked fact, well known to hundreds of people. The narrator had no ends to answer, no interests to promote; he speaks of a remarkable cure, where nature was the prescriber and operator; where character was neither to be gained nor lost. The evidence is here irresistible of the power of electricity over paralysis.

The following case is reported by the celebrated Dr. Watson. A girl in the Foundling Hospital, aged seven years, was attacked with tetanus arising from worms, July 8th. Her jaw was closely locked; the temporal and masseter muscles were tense and hard; she was feverish, her pulse quick, sometimes 130, and her flesh hot. For nearly three weeks the disorder

(a) *Annales de Chimie et de Physique*, 1822, tome xxix. p. 69.

confined itself to the jaw, but then the rigidity extended to the muscles of the neck, so that she could not move her head. Next, the muscles of her back became engaged; and by the following September all the muscles of her body were rigid and motionless. The sacrum and hips were drawn towards the shoulders, so that the spine formed a very considerable arch; the legs were drawn up almost to the thighs. In some time after, this miserable creature was seized with violent convulsions in those muscles of the eyes, face, and right arm which had any mobility left. They were so severe that her attendants imagined every attack would put an end to her sufferings. A very small quantity of food could be introduced through a small opening made by extracting two of her teeth, and so insufficient was this for her support, that she was reduced to an extreme state of emaciation. Her belly was contracted, and drawn inwards towards the spine; her whole body felt hard and dry, and much more like that of a dead person than a living one.

During the continuance of this disorder, which had lasted more than four months, nothing was omitted that could be suggested for her relief, but all in vain: her convulsions increased in violence, and every day was expected to be her last.

Dr. Watson, led by analogies and reasonings which he describes, determined on employing electricity. By a process, which he had invented seventeen years before, he could electrify any particular muscle without engaging any other. He electrified the muscles subservient to the motions of the lower jaw, the neck, and arms. After about a fortnight, the convulsions left her, and her sleeps were longer and more quiet, but the rigidity remained the same. After this, such parts of her body as were deemed most likely to be favourably acted on were made part of the circuit, and were shaken by the explosion of the charged phial. In about a fortnight more, her jaw was looser, and the muscles of her neck and arms had a larger

share of motion; they increased in size, and the patient in her strength. At the end of January, the electricity having been continued, every muscle in her body was loose and subservient to her will; she could not only stand, but walk, and even run: she had recovered her flesh and colour. The child was then presented to the committee of the Foundling Hospital, the governors of which expressed their amazement at so unexpected a recovery^(a).

After a recovery so remarkable and well attested, and performed by a physician of such celebrity, it is surprising that electricity should not always be used as an agent in this dreadful disease, especially as its application does not interfere with any other treatment which may be deemed advisable.

There is another case of tetanus, treated by electricity, which ought to be kept in mind: but in this instance, paralysis was also present. A strong girl aged eighteen, in consequence of a fright, was seized with convulsive fits which lasted, with slight intermissions, for a month. From the first attack, she never spoke, although otherwise sensible. Soon after, her jaws became locked, so that she could only be fed with thin panada, strained in between the teeth. She also became paralytic from her hip downward, on the right side. As the medical treatment proved to be of no use, Dr. Spry determined on trying electricity. He, therefore, "several times full charged her with the electric matter, discharging it alternately from the masseters, her temples, and under her chin; immediately on her parting with which she involuntarily shook her head, making her usual noise in endeavouring to speak." The next day he fixed the conductor round the temples and throat, and gave her slight shocks; which enabled her to open her jaws a little. The following day increased shocks permitted her to open her mouth a little more. The shocks were continued day after day, with increasing advantage, and she soon recovered perfectly. They were

(a) Philosophical Transactions, vol. liii. p. 672.

found to quicken her pulse twelve or fourteen beats in a minute(*a*).

Dr. Samuel Perry, of New Bedford, America, treated two cases of locked jaw by electricity, which had resisted all other means. He discharged a Leyden phial through the jaws,—they flew open instantly!!! This was an event worthy of the opening of the nineteenth century: but some were ill-natured enough to doubt it(*b*).

The following case of muscular contraction cured by electricity deserves attention. The head of the patient was drawn down over her right shoulder: the back part of it was twisted so far round that her face turned obliquely towards the opposite side, by which deformity she was disabled from seeing her feet, or the steps as she came down stairs. The sternomastoid muscle was in a state of contraction, and rigidity. She suffered under many symptoms dependent on the same cause, and at times was slightly paralytic. This state, which she had endured for two years, was caused by going from a warm room into cold air, and it came on with a pain in the back of her head, which gradually contracted the muscles to a melancholy deformity. Medicine having proved utterly useless, her medical adviser, Mr. Partington at length determined on trying electricity; and therefore drew strong sparks from the parts affected for about four minutes, which brought on very profuse perspiration, and this seemed to relax the mastoideus muscle to a considerable degree. This method producing some disagreeable symptoms, he communicated strong sparks to the muscle, by which the improvement proceeded progressively without certain feverish symptoms which the former mode had occasioned. In a little better than a month, by daily electrification, her cure was accomplished. Latterly both shocks and sparks had been used(*c*).

(*a*) Phil. Trans. vol. lvii. p. 88.

(*c*) Phil. Trans. vol. lxxv. p. 24.

(*b*) Phil. Mag. vol. viii. p. 382

Dr. Gilby describes a case of wry-neck which was completely cured by electricity. A lady, aged 28, had laboured under this disease for nine months: the contraction seemed to be in the left sterno-mastoid muscle, but was afterwards very apparent in the trapezius and subjacent muscles of the same side. The contraction was so great as to confine the head irresistibly upon the shoulder. Dr. Gilby began by drawing sparks from the sterno-mastoid muscle; but finding that this increased the contraction, he drew the sparks from the muscle of the same name on the opposite side. In less than five minutes he plainly discovered, at every approximation of the conductor, several efforts in the fibres to contract. Sparks were drawn from this and the antagonist muscles until the skin presented an appearance similar to that of nettle-rash. Some improvement being manifested, the operation was repeated night and morning, and at length for half an hour at a time, until a cure was effected, which may be said to have been all but complete in about a month.

Dr. Gilby records a similar case which was treated by electricity with the same happy result. He observes that, in such diseases, the electrical sparks must be very strong to produce any good effect: the apparatus ought therefore to be large, and kept perfectly dry(*a*).

The following remarkable case of St. Vitus's dance is reported by the celebrated Dr. Fothergill. A girl aged 10, of a pale, emaciated habit, had for six weeks laboured under violent convulsive motions, staggering, and involuntary gesticulations: two persons were required to keep her in bed. She then became speechless, idiotic, and powerless. Volatile and foetid medicines, warm baths, blisters, antispasmodics, and oxide of zinc, were successively tried without effect: and electricity was then had recourse to. She was placed on a glass-footed stool for thirty minutes, during which sparks were drawn from her arms, neck, and head. This treatment caused considerable

(*a*) London Medical Journal, vol. xi. p. 385.

perspiration, and a rash appeared on her forehead. She then received shocks through her hands, arms, breasts, and back; and from this time the symptoms abated, her arms beginning to recover their use. In a week, she got strong shocks through her legs and feet during forty-five minutes, and these parts also began to recover their power. In ten days more, being placed on the glass-footed stool for an hour, sparks were drawn from her arms, legs, head, and breast, which for the first time she felt very sensibly: she also got two shocks through the spine. She could now walk alone; her face became more florid, and all her faculties seemed wonderfully strengthened. Every time she was electrified positively, her pulse quickened to a great degree, and an eruption much like the itch appeared in all her joints. She eventually recovered her health perfectly. Dr. Fothergill mentions that, some time before, he had succeeded in curing another case of St. Vitus's dance(*a*).

Testimony is borne to the efficiency of electricity in this disease by De Haen, who declares that he never failed to cure it by electricity.

Dr. de Haen, one of the most celebrated physicians of his age, practised electricity for many years, and regarded it as one of the most precious adjuvants of the healing art; he declares that although it may often be employed in vain, it has frequently afforded relief when every other remedy had failed. Some persons, he says, have been relieved by it who were paralytic for twelve years or more. Others, who had paralysis of the tongue, the eyes, the fingers, and other members, have experienced unexpected benefit. A paralysis, or trembling of the limbs, from whatever cause, he says, has been invariably much relieved; and he reports a remarkable cure of such a disease after the patient had received but ten shocks. He cautions us against using electricity with pregnant women, but thinks it excellent in obstructions, and remarks that it

(*a*) Phil. Trans., vol. lxiix. p. 69.

always promotes the catamenial discharge(a). The opinion of Dr. de Haen is of great value; no one of his day employed electricity with such perseverance, and, in such a number of different diseases. Besides, he had the best opportunities in the hospitals of Vienna.

I am compelled by want of space, and press of other matter, to omit the numerous cases long since published by M. Masars de Cazelles in his *Memoire sur l'Electricité Medicale*. It is sufficient to say that most of them were cured.

I omit any notice of the volume published long since by Mr. Birch. He says that Dr. Heberden witnessed his success in several of the cases described: if so, that sagacious physician could not have been much impressed with the value of electricity when he thus expressed himself: "*aiunt electrificationem interdum fuisse utilem.*"

A case of neuralgia is related by Mr. Blunt, surgeon, in which electricity seems to have had a very decided effect. The patient was a lady aged 63, who suffered from a violent pain in her temple, which affected her by paroxysms several times in the day. Opening her mouth, either to speak or eat, would often produce a sudden accession of the pain, so that, although she had a desire for food, she was deterred from taking a proper supply, and, from being of rather a full habit, she soon became much reduced. Antispasmodics, blisters, leeches, extract of hemlock, &c., were all tried without effect. At length electricity was employed, by drawing sparks from her twice on that day, for about twenty minutes each time, slight shocks being also given during the second trial. As soon as the second operation was over, having a great desire for food, she ventured on some roast veal, and, to the astonishment of herself and some of her friends, felt not the least inconvenience from the complaint. She was better next day, but had a few slight returns of the pain. On the day after, the

(a) *Encyclopédie d'Yverdun*, Art. Electricité.

electricity was repeated with advantage. In two more days she was electrified for the last time, the pains having totally and permanently ceased(*a*).

Dr. Simmons gives an account of a retention of urine in which the remedies usually recommended by authors were adopted, but without success. The water, to the amount of three pints a day, was drawn off by the catheter. Electricity was proposed, and, as the patient had a machine of his own, it was employed next day. Being placed on an insulating stool, sparks were drawn from him, by which he was enabled to pass a few spoonfuls of water. Many attempts, also, were made to accomplish this without the aid of electricity, but in vain: on which account he was induced to have frequent recourse to the same experiment through the day. On the evening of the same day, a few shocks were passed through the region of the bladder, but from this method no water passed. On the following day, the patient, having no reliance on shocks, was then electrified as before, with a still better effect: the different times of electrifying through the day sufficiently unloaded the bladder. From this time, neither electricity nor the catheter was needed. The failure of shocks, and the success of sparks in this case are very remarkable(*b*).

The use of electricity in some affections of the testes was pointed out by Hunter in his *Treatise on the Venereal Disease*. We find several instances recorded of benefit thus derived. A dragoon who received an injury from the pommel of a saddle of so considerable and obstinate a kind that castration was resolved on, was eventually cured by slight galvanic shocks, continued every day for six weeks. A case in St. Thomas's Hospital, treated by Mr. Birch, was cured by three or four strong shocks at intervals of three days. In another case, treated in the same hospital, shocks produced feverish indisposition each time, but sparks effected a cure. The disease was

(*a*) London Medical Journal, vol. vii. p. 115.

(*b*) London Medical Journal, vol. vii. p. 10.

scirrhous of the testicle, on which sentence of extirpation had been pronounced.

The following case of amaurosis is remarkable both for the promptness of the cure and the novelty of the mode of applying the means. A girl aged 10, after various premonitory sufferings, lost the sight of one eye from amaurosis, all medical treatment having failed to avert this calamity. Her parents and herself comforted themselves in the reflection that one eye was safe; but this source of consolation soon failed them, for the original symptoms after a while affected the other eye. The girl being placed under the care of the eminent surgeon, Mr. Pott, he directed electricity to be employed. The following was the method adopted. She was placed on an insulating stool, and connected with the prime conductor: the conductor was put in connexion with a very large Leyden jar, exhibiting four feet of coated surface. When the jar was fully charged, the operator drew off the charge through the orbit of her eyes by a wooden point, until an attached Henley's electrometer stood at 3° ; the remainder of the charge was then drawn off through her temples. This process being repeated every day for thirteen days, her sight was perfectly restored. Even after the first time, she was enabled to see a glare of light, and to see various objects in the street(a).

The opinion of the late Sir William Blizard was, that when deafness is of the kind called *nervous*, electricity, as commonly employed by taking sparks from the meatus auditorius externus, is of little or no effect. In place of these, he recommends shocks; and the following was the manner in which he directed them in the case of a medical student at the London Hospital who had been for a long time almost entirely deaf. A Leyden jar, connected with the prime conductor of an electrical machine, was placed within the proper distance of a discharging electrometer, so that when the jar was sufficiently charged, its charge would strike the electrometer, and would

(a) London Medical Journal, vol. ix.

pass on along a chain terminating in a wire placed in the meatus auditorius externus. Another chain, placed at the bottom of the jar and joined to a silver wire, was passed through the nose into the Eustachian tube, a process which does not cause the least pain. Through this circuit were passed shocks, weak at first, but being repeated daily for some time, they were at length employed of a very considerable degree of strength. No uneasiness or pain in the head was ever produced by this process. It constantly occasioned a tingling sensation in the ear, and an immediate amendment of the hearing. This favourable effect would, however, wear away considerably in a few hours; yet, by persevering in the practice, the patient very nearly acquired his perfect hearing. He had once a shock transmitted from ear to ear through his head: but the violent pain which it occasioned made him think it unsafe to repeat the experiment; see, however, in *Med. and Phys. Journ.* vol. ix. p. 135, a case where shocks were passed through the brain: they were slight, it is true. Kramer, however, who appears to have examined into the matter, puts no faith in electricity as a cure for deafness.

Sir William Blizard declares that he had directed this method of application of electricity in a number of cases with success. He conceives that it may always be tried with perfect safety; except in an inflammatory or turgid state of the vessels of the parts(a).

Mr. Carpus, a skilful electrician, and an eminent surgeon, has published a number of cases treated by him, of which I shall give an abstract, as they always have been particularly relied on. He tried electricity in a variety of contractions, and found it serviceable only where the contraction depended on an affection of a nerve; but in cases of rigidity he thinks it of great use. Amongst other successful trials, he cured a wry-neck by drawing strong sparks through the trapezius muscle

(a) *London Medical Journal*, vol. vi. p. 31.

A rapidly increasing ganglion on the extensor tendons of the foot was cured by sparks in three weeks.

A young lady deaf for three years, so that she could not hold a conversation, was electrified by throwing sparks on the mastoid process, and round the meatus auditorius externus, and drawing them from the same parts, at the same time, on the finger of the opposite hand, during twenty minutes every day, for three weeks. It is stated that she could then hear perfectly well. Mr. Carpue gives several other cases of deafness cured by the same process. He found that, in several cases, the recovery was but temporary, and that the deafness returned in four cases out of five.

A girl aged six years had opacity of the corneæ of both eyes, in consequence of small-pox, so considerable that the pupils could not be seen. She could not distinguish objects; she had been in this state for two years; and obtained no benefit from the usual remedies. Mr. Carpue drew the aura with a wooden point from the parts affected, during ten minutes each day, for fourteen days; the parts became irritable, much pain being occasioned by the fluid. He now observed a visible alteration: the girl began to distinguish objects, and by the end of three months a cure was nearly effected. He still electrified the eyes occasionally, and at the end of six months she was perfectly recovered. He stated that the opacities occasioned by small-pox yield more readily to electricity than those produced by other causes. It must, however, be stated, that he does not specify the kind of opacity, its precise seat, nor whether the iris was engaged in it. In amaurosis he always failed; yet other persons have reported favourable results from electricity in that disease.

He details the particulars of several cases of amenorrhœa, the interruption in some instances having continued for eight, thirteen, and sixteen months; he gave sparks and shocks from the sacrum to the pubes; from the anterior inferior spinous process of the right ilium, to the inner side of the tube-

rosity of the left ischium; then from the pubes to the heel, and from foot to foot. He increased the shock, and gave ten each day for three weeks, or as long as necessary. The treatment was in all instances successful. He treated many cases of chronic rheumatism, some of these of an excruciating kind; in others, the use of the limb affected had been lost. By taking strong sparks for twenty minutes each day for a greater or less number of days, he was successful, when there was no admixture of pain from other sources. In paralysis, the effects of electricity were decisive. A gentleman, aged 50, lost the use of his lower extremities for two years, and had no feeling in them whatever. The plan adopted was to insulate him, and draw sparks for ten minutes from the great sciatic nerve; then to pass ten small shocks from the sacrum to the popliteal nerve, then from the sacrum to the toes. In three weeks the shocks were increased; in six weeks he could move his legs. The shocks now gave him some pain: they were then increased to twenty a day. In two months from the beginning he could walk with the aid of crutches; and after several variations of health he was perfectly recovered. A gentleman, aged 21, became paralytic after a course of mercury. After remaining in this state for a month, electricity was employed. He received fifteen strong shocks each day for four days, which he did not feel; for the next four days the number of shocks was increased by five each day; he could then move his legs. After two months' continuance of the shocks, gradually diminished in number, he was perfectly restored. In the case of a young gentleman, aged 18, who had lost the use and feeling of the lower extremities, it was found that sparks failed; but by shocks, gradually increased to fifty in the day, and then decreased, he was cured. A man who worked in a white lead manufactory got hemiplegia of the right side: mercurial frictions did nothing for him, but shocks given for six weeks removed the disease.

A foreigner having hemiplegia from intense study, the

muscles of his face drawn down, and his speech almost unintelligible, placed himself under Mr. Carpue; he could neither walk nor use his arm; at first he got sparks, then small shocks which were gradually increased; his spirits were much affected, and he frequently burst into tears. In six weeks he could talk perfectly well, could walk three or four miles, and had the perfect use of his arm.

Several other successfully treated cases have been reported by Mr. Carpue; the foregoing are the chief. He tried galvanism in a number of instances, and, as he avows, failed in them all(*a*).

There is an effect of ordinary electricity that I do not remember to have seen noticed by any author but one; I allude to a sialagogue power which it has been said to possess, and which, if there be any use in mere sialagogues, might be turned to account. M. Mauduit informs us that, having had occasion to keep a patient of his a long time under a course of electricity, administered almost every day, he was soon ptyalised; which state continued during almost the whole period(*b*).

The last use of common electricity, to which I shall next call the attention of the reader, is that of distinguishing between real and apparent death. Some sure criterion for distinguishing death from asphyxia has been always a desideratum. In the *Journal Encyclopedique*, 1776, a memoir was inserted "On the Danger of precipitate Interments," which seems to have excited much attention, as it was proposed that the different Colleges of Medicine, and the chemists, should discover and publish some agent by which death would be infallibly discoverable. Shortly after, electricity was proposed by M. Changeau, and again by M. Nicolas, an apothecary of Nancy, who also pointed out the advantages of electricity as a restorative in asphyxia(*c*). Of late years galvanism has been proposed as a

(*a*) Carpue on Electricity and Galvanism. London, 1803.

(*b*) Rozier, *Observ. sur la Physique*, 1778, p. 216.

(*c*) *Journal de Physique*, vol. x. p. 193. and vol. xiii. p. 232.

test of death; but I conceive that ordinary electricity is much more to be relied on, because an electric shock has no effect on a dead body; but galvanism, as every one knows, produces lively contractions, even several hours after death.

Electricity was much employed by Dr. Bardsley in obstinate rheumatic complaints. It was found of great service where the muscular fibres were torpid and rigid, and there was a diminution of vital heat. Its effects are, he thinks, more powerfully and beneficially exerted when used in conjunction with the topical application of vapour. His general plan was, first, to order the diseased parts to be exposed to the action of vapour, and during this operation, a stimulant liniment to be diligently rubbed upon their surface; and, finally, the application of electricity. The plan seems an excellent one. He also employed galvanism in some cases with advantage, but did not succeed with it in any instance where common electricity had failed(a).

Professor Imhoff, of Munich, thus generalises the effects of electricity: It promotes the free circulation of the fluids, and especially of the blood; it accelerates perspiration, increases animal heat, and promotes all the secretions and excretions of the body. The essential condition of the useful application of frictional electricity is that the machine employed shall be one of considerable power, although its utmost intensity is by no means to be always brought to bear on the patient. When the rube-facient effects, or the aura, or the stream, or the local stimulus of electricity are required, they can only be obtained from the largest and most powerful machine.

Mr. Cavallo recommends the use of large electric machines, because, when the stream is employed (and it had been found in many cases more efficacious than shocks), a small one, he says, will be altogether useless, and the largest will not afford a current too powerful for medical purposes. He conceived

that the power should be regulated in such a manner as to apply every degree of it with facility, beginning with a stream issuing out of a metal point, next out of a wooden point, then giving sparks gradually increasing, and finally small shocks, which, as Mr. Lovet has shewn, are more useful than strong ones.

The aura, from a pointed wire, which many persons might consider too gentle an application to be of much use, Mr. Cavallo declares, has often mitigated pains, and cured obstinate and even dangerous diseases, that could not be removed by any other remedy. The difference between the wooden and brass points is evidenced by this fact, that the fluid discharged by the former, on an open sore, gives pain and enlarges it; while, by that discharged from the former, both effects are diminished. He conceives that the stream from the wooden point is, nevertheless, not too strong for the eyes: should it prove so, in cases of great tenderness, the brass point may be substituted.

Mr. Cavallo describes a method of taking or giving sparks through flannel, which has often been practised with singularly good effect in paralysis, coldness, rheumatism, &c. The patient is to be placed on an insulating stool, and connected with the prime conductor; dry, warm flannel is to be laid round the part to be electrified, and sparks are drawn through it by means of a director.

If there be three or four folds of flannel, and the electric machine be powerful, and in good action, when sparks from a large conductor are drawn through the flannel on the part, a copious eruption of red spots will appear. This eruption was noticed almost a century since by Kühn, in his essay *De Electricitate Medicamentosa*, which will be found in the *Nova Acta Physico-Medica*, 1757, p. 228, but it excited little attention for many years, although obviously so easy and speedy a mode of producing rubefacient effects in local diseases, especially when aided by stimulating liniments. I have known rheumatic pains to be speedily removed by this mode of treatment.

The electrical *bath* is a mode of electrification on which much reliance has been placed, as it is said to quicken the circulation and to promote perspiration. The bath is nothing more than a surcharge of electricity on the body of the patient, and an atmosphere of the electric fluid surrounding him. He is said to be in the bath when merely seated on an insulated stool, and placed in connexion with the prime conductor of a powerful machine. By turning the winch, he is immediately filled and surrounded by the fluid(*a*).

The latest testimony on record of the medical efficacy of frictional electricity is to be found in a report of Dr. Golding Bird, who declares that scarcely any cases have been submitted to electrical treatment in which its sanatory influence has been so strongly marked as those in which the menstrual function was deficient. While chlorosis is present, scarcely any benefit is to be expected. The rule for insuring success, in the great mass of cases of amenorrhœa, is to improve the general health by exercise and tonics, and to remove accumulations in the bowels; a few electric shocks, often a single one, will then be sufficient to produce menstruation. The shock of a quart Leyden jar is to be passed from the pubes to the sacrum, as often as necessary, beginning about a week before the expected return of the menstrual discharge(*b*).

This effect of electricity, coming from the authority it does, is of great value, and will be appreciated by all who consider the intractable nature of the state of constitution which it is proposed to relieve, and which often baffles the skill of the most eminent. Electricity is, perhaps, the only real emmenagogue that exists.

I have now done with ordinary or frictional electricity, and could easily have multiplied examples of its efficacy as a remedial agent, but that I conceived those adduced, the most striking I could select, would prove sufficient to remind me-

(*a*) *Encyclopédie Méthodique*. Art. *Electricité*.

(*b*) *Gay's Hospital Reports*, April, 1844.

dical practitioners of the excellent assistance which their efforts have received from this source during nearly a century. It never has done harm; it has performed remarkable and well attested cures in the hands of the skilful; and when it failed, the fault frequently lay with the operator. It ought not then to partake of the fate of ephemeral remedies which love of novelty introduced and caprice abandoned. Electricity, one of the most energetic physical agents in the universe, appears to play a chief part in all the operations of nature: it exists everywhere, in every thing; it is conspicuous in the process of life itself; it were surprising, indeed, if such an universal power exerted no influence over health. But its influence in this way is not matter of conjecture, inference, or probability; its control over disease is as well proved a fact as any other in the history of remedies.

Ordinary electricity possesses several advantages over galvanism; one is that of transmission *with full effect* through any required part of the body. Galvanism, it is true, can be transmitted, but in a comparatively imperfect manner; some portions of a limb are more sensitive to this influence than others; the former will experience severe shocks, when the latter will feel nothing: and if the power of the current be sufficient to effect the less sensitive parts, those that are more sensitive will be acted on with intolerable energy. But the discharge of a Leyden jar will take effect even on the smallest portion of the body. The advantage which ordinary electricity possesses of throwing a torrent of dense sparks, or the aura, upon any required surface is also very great, and cannot be derived from galvanism. On the other hand, galvanism has points of superiority over ordinary electricity, as will be presently seen. In fine, electricity can never be made to exert its full control over disease, unless by the judicious allotment of each of its forms to its legitimate function.

(*To be continued.*)

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

1. *Lectures illustrative of various Subjects in Pathology and Surgery.* By SIR BENJAMIN C. BRODIE, Bart., F. R. S., Sergeant-Surgeon to the Queen, &c. &c. London: Longman and Co. 1846. 1 vol. 8vo. pp. 411.
2. *Practical Surgery.* By ROBERT LISTON. Fourth edition. London: Churchill. 1846. 1 vol. 8vo. pp. 582.
3. *A System of Surgery.* By J. M. CHELIUS, Doctor in Medicine, Professor of general and Ophthalmic Surgery at Heidelberg, &c. Translated from the German, and accompanied with additional Notes and Observations, by J. T. SOUTH, Professor of Surgery to the Royal College of Surgeons of England, Surgeon to St. Thomas's Hospital, &c. London: Renshaw. 1845-6. Parts 6 to 12. 8vo.
4. *A System of Practical Surgery.* By WILLIAM FERGUSON, F. R. S. E., Professor to King's College, London, Surgeon to King's College Hospital, &c. Second Edition, with Illustrations by Bagg. London: Churchill. 1846. 12mo. pp. 558.
5. *The Practice of Surgery.* By JAMES MILLER, F. R. S. E., Professor of Surgery to the University of Edinburgh. Edinburgh: A. and C. Black. 1846. 12mo. pp. 688.

As the five works enumerated in the foregoing heading may be regarded as exhibiting the present state of surgery in Great Britain, we have included them in the same category, and now proceed, not to analyze their contents, but to notice either such portions of each as may afford our readers some general ideas of their authors' style and capabilities as observers and teachers, or such as may be found useful in a practical point of view. And at the same time we shall endeavour to enumerate, and give a pre-eminence to, those improvements in practi-

cal surgery which have been made, either in this or other countries, during the last half-dozen years.

We congratulate the profession on the appearance of Sir Benjamin Brodie's work. It bears upon it the stamp of authority, and in it the internal evidence of long experience and mature thought. The writings of this accomplished surgeon have been well known, and justly appreciated by the profession, of which he has been so highly valued a member, for many years. The lectures contained in the present volume have been already generally known amongst the medical public. The author for several years past has been in the habit of addressing, annually, a limited number of lectures on surgery and surgical pathology, to the students of St. George's Hospital. Several of these lectures have already appeared in some of the Medical Journals; part of them are published in the present volume, "having, however," as the author states in his advertisement, "undergone various corrections, and received such additions as my late experience, and more mature reflection, have enabled me to furnish." We are happy to see another edition of these valuable lectures published in the present form by the author, for we feel persuaded they have lost none of the interest which was originally attached to them. They cannot fail still to interest and profit the members of our profession, and we strongly recommend them to their earnest attention.

The two first lectures, the author informs us, formed part of a course which he delivered as Professor of Anatomy and Surgery to the Royal College of Surgeons of England, more than twenty years ago, and which had not been published previously. He says: "They relate to subjects of *considerable interest*, which are not very distinctly treated of in surgical books: and I have hopes that they may afford some useful information to the junior class of medical and surgical practitioners."

We cannot speak too highly of these two lectures; we would advise every student and young medical practitioner to read them carefully. They are the words of one who has himself experienced what he speaks of, and who generously and philanthropically recommends to others what he has long proved of such advantage to himself; they are the opinions of one who has studied human nature thoroughly, not for the purpose of dishonestly practising upon its weaknesses, but (as one who felt that he himself may be the subject of the same) with the honourable intention of conscientiously administering to the relief of its various infirmities. We subjoin a few extracts from these important lectures.

To the young practitioner, struggling against the many hindrances he has to contend with in his onward progress through the early part of his professional career, we think the following is encouraging:

“Although many years have since elapsed, it seems to me but as yesterday, when I was, as you are now, a young adventurer in this great metropolis; and I well remember how often, in the intervals of my occupations, I have contemplated, with something like dismay, the prospect which lay before me. My own feelings, at that time, explain to me what may possibly be your's at the present period. Yet you have undertaken nothing which energy and perseverance, and upright and honourable conduct, will not enable you to accomplish. It cannot, indeed, be predicated of any individual to what extent he may attain professional success, for that must depend partly on his physical powers, partly on the situation in which he is placed, and on other contingencies: but, having had no small experience in the history of those who have been medical students, I venture to assert, that no one who uses the means proper for the purpose, will fail to succeed sufficiently to gratify a reasonable ambition. It is also true that you will meet with difficulties in your progress: but there is no higher gratification than that of surmounting difficulties; and whenever they occur, you will be cheered by the anticipation of that period when you may look on past events and say to yourselves,

“*Multa dies variusque labor mutabilis ævi
Retulit in melius.*”—p. 26.

Every one has a character to make, and to support; a certain amount of responsibility to incur; the young man cannot escape from this; he lives before the public, and they are watching him; he cannot escape their observation either for good or evil; let those who think otherwise, think well upon the words of wisdom contained in the following extract:

“Transplanted, perhaps, from some small community into this great city; the largest, the most populous, the richest, that ever flourished; jostled in crowded streets, surrounded by palaces, where the high-born and the wealthy, where the most eminent statesmen, the most distinguished in literature, in sciences and arts, and in every other human pursuit, are, as it were, fused into one mass to make the London world; contemplating the novel scene around you, but being not yet identified with it; it cannot be otherwise than that a sense of loneliness should come upon you in the intervals of excitement: that you should say, ‘What am I in the midst of so much bustle, activity, and splendour? Who will be at the pains to watch the course of a medical student? Who will know whether I am diligent or idle, or bear testimony in after years to the correctness or irregularity of my conduct during this brief period of my life?’ But let not your inexperience lead you into so great an error.

Even now, when you believe that no one heeds you, many eyes are upon you. Whether you are diligent in your studies, striving to the utmost to obtain a knowledge of your profession; honourable in your dealings with others; conducting yourselves as gentlemen; or whether you are idle and inattentive; offensive in your manners; coarse and careless in your general demeanour; wasting the precious hours which should be devoted to study, in frivolous and discreditable pursuits;—all these things are noted to your ultimate advantage or disadvantage, and ultimately you will find that it is not on accidental circumstances, but on the character which you have made as students, that your success as practitioners, and as men engaged in the business of the world, will mainly depend.”—p. 28.

We shall give one or two more passages from these admirable discourses.

“Do not begin life with expecting too much of it. No one can avoid his share of its anxieties and difficulties. You will see persons who seem to enjoy such advantages of birth and fortune, that they can have no difficulties to contend with, and some one of you may be tempted to exclaim, ‘how much is their lot to be preferred to mine!’ A moderate experience of the world will teach you not to be deceived by these false appearances. They have not your difficulties, but they have their own; and those in whose path no real difficulties are placed will make difficulties for themselves; or, if they fail to do so, the dulness and monotony of their lives will be more intolerable than any of those difficulties which they may make, or which you find ready made for you. Real difficulties are much to be preferred to those which are artificial or imaginary; for, of the former, the greater part may be overcome by talent and enterprise, while it is quite otherwise with the latter. Then, there is no greater happiness than that of surmounting difficulties; and nothing will conduce more than this to improve your intellectual faculties, or to lighten the labours, and smooth the anxieties of life afterwards.”—p. 43.

Would that the following ennobling sentiments were engraven in the head and heart of every single member of our Profession:

“You might be unscrupulous in your promises; undertaking to heal the incurable; making much of trifling complaints for your own profit; claiming credit where none belongs to you; and you might try to advance yourselves by what is often called a knowledge of mankind, or a knowledge of human nature. But how is that term misapplied! Knowledge of human nature, indeed! This is the most difficult, the most interesting, the most useful science in which the mind of man can be engaged. Shakspeare knew human nature, as it were, by instinct. It has been the favourite study of the greatest men,—of Bacon, of Addison, of Johnson. But of those who are commonly spoken of in the

would as knowing human nature, the majority are merely cunning men, who have a keen perception of the weak points of other men's characters, and thus know how to turn the failings of those who, probably, are superior to themselves in intellect, to their own account. Generous feelings belong to youth; and I cannot suppose that there is a single individual present, who would not turn away with disgust from any advantages which were to be obtained by such means as these. Your future experience of the world, if you use it properly, will but confirm you in these sentiments: for you will discover, that of those who strive to elevate themselves by unworthy artifices, it is only a very small proportion who obtain even that to which they are contented to aspire; and that the great majority are altogether disappointed, living to be the contempt of others, and especially of their own profession, and, for the most part, ending their days in wretchedness and poverty."—p. 53.

We trust the extracts which we have just given from these discourses will induce those for whose benefit they were originally intended, not merely to read over these valuable lectures for themselves, but to study them with attention and interest, and to exhibit in their lives the influence which their important precepts may have exerted upon their minds.

The third Lecture treats of the effects of strangulation. He considers, 1, The effects upon the spine; 2, Upon the blood-vessels; 3, Upon the nerves; and 4, Upon the trachea. He states:

"With respect to the one first mentioned, I may observe, that I have examined the bodies of several persons who had been hanged, and never found the spine to have been injured in a single instance. It is certainly of rare occurrence. Louis, however, mentions that he had examined the necks of criminals who had been hanged by two different executioners, and that he ascertained that in those who had been executed by one of them, there was a luxation of the first vertebra from the second, while it was not so in those who had been executed by the other. 2, I have seen the inner tunic of the carotid arteries lacerated by the pressure of the cord. This appearance, however, does not (as I believe) present itself in the majority of cases. It is manifest, that the pressure must always operate on the jugular veins, so as to interfere with the due return of blood to the heart, and cause an accumulation of it in the vessels of the brain."—p. 57.

3. The nerves, too, suffer from the injury; and Sir B. Brodie believes, from experiments performed by himself, that the effects upon the lungs are similar to those which occur after the vagi have been divided.—p. 59. 4, "There can be no doubt," he observes, "that strangulation causes death by closing the trachea, and preventing respiration; and that whatever other

effects it produces are of secondary importance to this."—p. 60.

"The mode of death from strangulation or hanging is sufficiently obvious. 1, The trachea is obstructed so that air cannot enter the lungs. 2, The blood passing through the lungs does not undergo that change which respiration produces, and which is necessary to life. 3, Dark-coloured blood, which has not been purified by exposure to air, is transmitted to the left side of the heart, and from thence to the heart and other organs. 4, The heart continues to act, circulating dark-coloured blood, but its actions gradually become weaker, and in a very few minutes cease altogether."—p. 60.

The author next enters upon the inquiry, what is the immediate cause of the cessation of the heart's action? This involves the discussion of another, so long maintained with great ability among physiologists, namely, what is the immediate cause of the heart's action? The conclusion to which Sir B. Brodie arrives is, that the organ depends upon the influence of the nervous system for its exciting cause of action, and that the cessation of its action depends, therefore, upon the injury which the nerves have received in strangulation.

The author details the symptoms which arise from strangulation, and afterwards considers the treatment which should be had recourse to in cases of this kind. He states: "The only effectual method of supplying the want of natural respiration is that of inflating the lungs by a pair of bellows, or a syringe, or some similar contrivance." Particular directions are given as to how this operation should be performed. The air is to be impelled in the same quantity as it is inhaled in ordinary inspiration, but not in greater quantity; this should be done gently, lest the cells should be too forcibly distended, and the air be thus forced through the coats of the capillary vessels into the circulation, and thus cause instant death. Sir B. Brodie objects to the introduction of a tube into the trachea in ordinary cases; he prefers the introduction of this portion of the inflating apparatus through the nostril, but he states that "where the respiration is obstructed by inflammation and swelling of the mucous membrane of the pharynx and larynx, or by a tumour in this situation, the lungs can be inflated only by means of a tube introduced into the trachea;" and under such circumstances, the situation which he recommends for its introduction is in the crico-thyroid space, as being most easily arrived at by the surgeon.—p. 77.

The author insists upon the utmost expedition in the use of remedies in cases of strangulation, and also upon the important fact, that "*if that action of the heart by which the circu-*

lation is maintained should cease, as a consequence of the suspension of respiration, it can never be restored. This I positively assert, after having made it the subject of a very careful investigation."—p. 81. He recommends voltaic electricity for the restoration of the heart's action, and advises that the patient be kept in an atmosphere of a moderately warm temperature. He seems to have no great faith in venesection in these cases.

"On the mode of death from drowning" is the subject of the fourth Lecture. This lecture contains many interesting particulars connected with the subject of respiration; and the author insists upon the fact, that atmospheric air is essential to the existence of all animals who breathe the air by lungs, or by cavities analogous to them. He considers that "death from drowning is similar to death the consequence of strangulation; and the want of the due oxygenation, or decarbonization, of the blood, is the sole cause of the animal's destruction."—p. 85. The author gives an accurate account of the phenomena presented by an animal when drowning by immersion in water, and asserts: "I have never opened the thorax of an animal in which the heart was found acting in such a manner as to maintain the circulation of the blood so long as five minutes after complete submersion."—p. 86. As to the admission of water into the windpipe, he believes that the spasm of the muscles of the glottis will prevent its occurrence, and "that these muscles form a sphincter to the windpipe, as perfect in its functions as any sphincter in the body."—p. 88.

With regard to the question, how long may an individual remain with impunity under water, he believes, on good grounds, that in the case of divers the period never exceeds two minutes; and the Rev. Mr. Cordiner, whose description of Ceylon is referred to by Sir B. Brodie, asserts that some of these divers at the pearl fishery "performed the dip within the space of one minute; others came up in one minute and twenty seconds."—p. 91. We refer our readers to the lecture itself for the methods of treatment recommended by Sir B. Brodie. At the end of this lecture the subject of death from lightning is considered.

In Lecture v. we have an account of "some cases of cysts containing watery fluid apparently connected with the liver."

These tumours occurred in the right hypochondriac region, below the edges of the ribs, and possessed a distinct sense of fluctuation. The author punctured these tumours, and drew off a watery fluid from both the cases on which he operated. They were not, he supposes, of hydatid origin, as he could not

detect any remains of these bodies in the fluid ; in fact, he looks upon them as *hydrocelic tumours*. In the third case, inflammation and suppuration followed the puncture he had made, and an abscess formed, which burst into the colon. He attributes the inflammation which followed in this case to his too great anxiety to empty completely the contents of the sac.

The sixth Lecture treats of "ununited fractures." The author gives an account of the curative process by which broken bones are united. He then considers the "circumstances under which fractures do not unite," and under this head mentions, in the first place, the cause of non-union by bone in intra-capsular fractures of the neck of the thigh-bone, and attributes it to the fact that this portion of the bone is surrounded by synovial membrane, and not by muscles and cellular membrane, "in which the process of union begins when the fracture is in the shaft of the bone."—p. 120. He believes that the diseased bone may in some instances unite perfectly, and he gives three cases in proof of this. In one there was a node upon the clavicle, which was broken ; in two more cases, the fractures occurred in females who had cancer, and where the bones were unquestionably diseased. In all perfect union took place. A piece of muscle getting in between the ends of the bones is another impediment to bony union. Loose bandaging may give rise to the like unpleasant consequence, as too tight bandaging may produce the same effect ; and he states, that in most instances "the want of union is to be traced to a peculiar state of the constitution."—p. 124.

The "appearances, on dissection, of an ununited fracture," are next noted ; and, finally, the treatment is considered. The various methods recommended from time to time are alluded to. He totally discards the severe and dubious remedy of cutting down upon the ends of the bone, turning them out through the wound, sawing off a portion of each of them, and then replacing them. He considers Mr. Amesbury's plan more successful than any of those which he has mentioned : this plan consists in keeping "the bones in a state of the most complete repose, by means of a suitable application of splints and bandages, at the same time that the broken extremities are kept firmly and steadily pressed against each other."—p. 133.

"Sero-cystic tumours of the female breast" is the subject of the seventh Lecture. Sir A. Cooper called this the hydatid disease of the breast. Sir B. Brodie states :

"The first perceptible indication of the disease is a globular tumour imbedded in the glandular structure of the breast, and, to a certain extent, moveable underneath the skin. Sometimes there is only one

such tumour; at other times there are two or three, or many more. The examination of the breast in the living person does not enable you to determine the exact number which exist, as it is only where they have attained a certain magnitude that they are perceptible through the skin. In most instances the disease is confined to one breast, though it is by no means very uncommon for both breasts to be similarly affected. If you puncture the tumour with a grooved needle, the fluid may be evacuated so as completely to empty the cyst, and the perfect subsidence of it afterwards proves how little space the cyst itself occupies. The fluid is always serous. In a more advanced stage of the disease some colouring matter is generally blended with it, and it may be green, or brown, or so dark-coloured as to be almost black. The quantity of fluid, of course, varies. There seems to be little doubt that the cysts are originally formed by a dilatation of the lactiferous tubes."—p. 138.

The tumour is at first globular and simple in its structure; afterwards, the author states, it may become more complex in its character; it may become more solid, and a large mass of disease now forms, the skin ulcerates, and an intractable and bleeding ulcer is the consequence. Some of the cysts give way, and at last a fungous growth protrudes through the opening. In our review of Mr. Tuson's work in our last Number, we alluded to Sir B. Brodie's opinions upon this subject. The following are the pathological changes which he observed in the progress of this disease:

"*First*.—A greater or less number of membranous cysts are generated in the breast, containing serum. The latter is at first of a light yellow colour, and transparent, but afterwards becomes of a darker colour, and opaque. There is reason to believe that these cysts are formed by a dilatation of portions of some of the lactiferous tubes.

"*Secondly*.—Morbid growths or excreescences are generated from the inner surface of one or more of these cysts, projecting into their cavities. These excreescences seem to consist of albumen or fibrine, which, after some time (if not immediately), becomes organized. They are covered by a thin, delicate membrane, which is reflected over them from the inner surface of the cyst; but whether they are originally formed between two layers of the membrane of the cyst, or whether they are at first mere deposits of fibrine or albumen on the inner surface of the cyst, a thin membrane being formed on their surface afterwards, remains to be determined by future observations.

"*Thirdly*.—There is some reason for believing that a similar growth of fibrinous substance may take place from the external surface of the cysts, connecting different cysts with each other; but this point also may, perhaps, require to be illustrated by further investigations.

"*Fourthly*.—Under certain circumstances the cysts become completely filled up by the morbid growth, so that their cavities are obliterated, the tumour being thus converted into a solid mass, in which, however, the remains of the cysts are perceptible; and this is the prelude to a still further change, in which the greater part of the cysts have wholly disappeared, a solid mass of an indistinctly laminated texture occupying their place.

"*Fifthly*.—If one of the membraneous cysts be artificially laid open, or if it burst from over-distension with serum, the fibrinous excrescence from its inner surface, being no longer restrained by the pressure of the skin, increases in size, and protrudes externally in the form of a fungus, giving to the tumour a new and more formidable character.

"In this last stage of the disease it is evident that spreading ulceration, sloughing, and hæmorrhage, the usual results of an ulcer occurring in a diseased structure, must ensue, for which our art furnishes no other means of cure than the removal of the affected parts by a surgical operation."—p.148.

Sir Benjamin Brodie next considers the treatment of this disease. When it exists as a simple membraneous cyst or cysts containing serum, he says, the fluid contents may be evacuated by puncturing with a grooved needle. This he does not, however, consider as productive of any permanent benefit, but it is the only operation he would advise at that stage. He strongly recommends the use of a stimulating embrocation to the surface of the skin, composed of three ounces and a half of camphorated spirit of wine, the same quantity of proof spirit, and a drachm of liquor plumbi.

As the results of this treatment, he states that, under its use, "the tumour or tumours have entirely disappeared." The following mode of its application is advised by Sir B. Brodie: the patient is directed "to soak a piece of flannel, once folded, in this embrocation, and to apply it so as to cover that part of the breast in which the tumour is situated, renewing the application six or eight times in the day and night, until the skin becomes inflamed; then to omit the application for two or three days, but to resume the use of it as soon as the inflammation has subsided."—p. 152.

With regard to the treatment of this disease in the advanced stages, Sir B. Brodie remarks :

"But such simple modes of treatment as are useful in the early stage of the disease, are wholly inefficient after the growth of solid substance is begun. In this more advanced period of the disease no good is to be expected, except from the removal of the entire breast; and such an operation may be had recourse to with every prospect of success."—p. 154.

Lectures viii. and ix. treat of varicose veins, and ulcers of the legs.

In Lecture x. we have brought under our notice "the cases of scirrhus tumours of the breast which require an operation." The author treats this difficult subject with his usual ability, and comes to the following conclusions: first, "that in cases of scirrhus tumour of the breast, where the tumour is actually imbedded in the breast, if you perform the operation you must remove the whole of the breast."—p. 194. He divides scirrhus tumours of the breast into two classes; first, where the gland itself is converted into a scirrhus structure without a well-defined margin; and, second, where a scirrhus tumour is imbedded in the breast, where it is, in fact, a new growth, and having a well-defined boundary to it. In the first case he is totally opposed to operation. Again, he is opposed to operation where the skin is diseased, i. e., where there are scirrhus tubercles formed in it, or where it is thick and brawny, the pores being enlarged, and where you cannot pinch it up as you would healthy skin. He considers retraction of the nipple as an unfavourable symptom. Whenever the scirrhus tumour produces a dimple in the skin covering the breast, he considers the case unfit for operation. Whenever the glands of the axilla become indurated, or where the scirrhus tumour adheres to the parts below, or where the skin becomes ulcerated, or where there are indications of malignant disease in other organs, he believes these circumstances, or any one of them, should be sufficient to forbid an operation(a). Again, the author says: "If an old woman has a scirrhus breast in a quiet state, you would never think of amputating it, because she may die before there is an alteration for the worse. The disease may outlast her, and of this there are, we believe, many instances."—p. 199. Even under the most favourable circumstances, he does not consider amputation of the breast a certain cure, and, besides, he believes it is not always free from danger.

Lecture xii. "On the Administration of Mercury in Cases of Syphilis." The author states that the observations in this lecture are of a general character, and expresses a hope that they may be useful to those who are entering on the practice of their profession. He is in favour of the mercurial plan of treatment under certain restrictions, and adds: "In this hospital I have tried to treat syphilitic patients without mercury with very little success indeed; and I venture to say that, in

(a) All these symptoms we remember the late Professor Colles laying particular stress upon, in his graphic surgical lectures, many years ago.

private practice, the attempt to adopt this plan, as a general rule, will always be a failure.”—p. 234. In cases of children born with syphilis, the author recommends the following method of treatment by mercurial inunction: “I have provided a flannel roller, on one end of which I have spread some mercurial ointment—say a drachm or more; and I have applied a roller, thus prepared, not very tight, round the knee, repeating the application daily. The motions of the child produce the necessary friction; and the cuticle being thin, the mercury easily enters the system.”—p. 245. In order to form correct ideas of the author’s views upon this interesting and disputed topic, the lecture itself should be studied. We shall presently consider the subject of syphilis, and the administration of mercury, in the abstract.

Lecture XIII. “On Tic Douloureux, or facial Neuralgia.”

Sir B. Brodie, in the first instance, gives a case of this painful affection which was relieved, and ultimately cured, by the following plan of treatment:—

“He was directed to apply the veratrine ointment, in the proportion of a scruple of the veratrine to an ounce of lard. A portion of this was to be rubbed in on the cheek twice a day, and he was to take five grains of blue pill every night, with a draught containing five drachms of infusion of senna, five drachms of compound infusion of gentian, a drachm of tincture of senna, and a drachm of sulphate of magnesia, every morning. Having pursued this plan for about a week, he thought he was a little better. He was afterwards directed to take infusion of rhubarb and columbo, of each six drachms, with a drachm of compound tincture of cardamoms, and half a scruple of carbonate of potass, three times daily. He was to go on taking the blue pill. The medicine was not sufficient to act on the bowels. He was directed to take five grains of blue pill every night, and a sufficient dose of compound infusion of senna and sulphate of magnesia every other morning. In some time after he was placed on the following plan of treatment: he was to take five grains of blue pill, five grains of compound extract of colocynth, with three grains of extract of lettuce, every night.”—p. 250.

By a perseverance in this plan the patient ultimately recovered. This case was one where the stomach and bowels were the exciting cause of the neuralgic affection. Sir B. Brodie considers the pain but a symptom, and states the several causes on which it may depend, viz. a diseased bone may give rise to the affection, or it may be of an hysterical character, or it may assume an intermittent form, and depend upon “that peculiar state of the system which produces the phenomena of *ague*” (p. 257); or in other cases the disease may depend on disease of the digestive organs.

"The late Dr. Pemberton, who was for many years physician to this hospital, an excellent practitioner, and engaged in a very large professional practice at the west end of London, in the midst of his career of prosperity became affected with the *tic douloureux*, and suffered from it in the most horrible manner. I never saw any individual under the same circumstances whose sufferings were equal to his: but I am led to mention his case at present, because, after having retired into the country, he died at last with symptoms of cerebral disease."—p. 258.

We must refer our readers to the author's own work for the treatment he recommends in these affections.

Lecture xiv. "On Fatty or Adipose Tumours." The author commences by describing the ordinary fatty tumours, and offers several practical observations upon the disease and the treatment necessary for it. He is not disposed to operate when the tumour is very small; "*first*, because the tumour may never increase, and as long as it is small it is of no consequence; and, *secondly*, because the operation is really more easy when the tumour has reached a moderate size than it is at any earlier period."—p. 274. The author states, that

"There is another kind of fatty tumour which occurs occasionally, but which has not been, as far as I know, described by surgical writers. In the cases to which I allude the tumour is not well defined; in fact, there is no distinct boundary to it, and you cannot say where the natural adipose structure ends and the morbid growth begins. I will relate to you the history of one of several cases of this kind that I have met with, and this will explain as much as I know of the matter. A man came to this hospital several years ago, having a very grotesque appearance, there being an enormous double chin, as it is called, hanging nearly down to the sternum, and an immense swelling also on the back of his neck, formed by two large masses, one behind each ear, as large as an orange, and connected by a smaller mass between them. He said that the enlargement had begun to shew itself three or four years before, and had been increasing ever since. They gave him no pain, nevertheless they made him miserable, and, in fact, had ruined him."—p. 275.

The treatment which Sir B. Brodie relies on in this disease is the liquor potassæ, in half drachm or drachm doses, three times a day. The author next describes another form of tumour, which, to his knowledge, has not been described by other surgeons, and which is found in various parts of the body.

"They are situated in the subcutaneous adeps, give no pain, and are not tender to the touch. They have a well-defined margin, and are of a somewhat firmer consistence than common fatty tumours, to

which, in other respects, they bear a great resemblance. They grow to a certain point, then remain stationary, while others shew themselves elsewhere, until at last there is no part of the trunk or extremities in which they are not to be met with, varying in size from that of a pea to that of a small walnut. They occur in persons who are otherwise in good health, and do not seem to be connected with any other disease." —p. 977.

With regard to the action of liquor potassæ, he thinks it probable that "the oily part of the tumour combines with the alkali, is taken into the circulation, and thus carried off." —p. 278. The author devotes the next six lectures to the subject of mortification; we regret that our prescribed limits will not permit us to give even an outline of these valuable discourses; they are full of interesting matter, and we know of no work where the subject has received such full consideration.

The last lecture in the work is "On chronic Abscess of the Tibia." The author gives the following case:—

"It was as long since as the year 1824 that I was consulted by a young man, twenty-four years of age, under the following circumstances: there was a considerable enlargement of the lower end of the tibia, but the ankle-joint admitted of every motion, and was apparently sound. The skin was thin, tense, and closely adherent to the periosteum. There was constant pain in the part, generally of a moderate character, but every now and then it became excruciating, keeping the patient awake at night, and confining him to the house for many successive days. It made his life miserable, and his nervous system irritable, one effect of which was, that it spoiled his temper, and thus produced another set of symptoms in addition to those which were the direct consequences of the local malady. The disease had been going on for twelve years. He had consulted many surgeons respecting it, and had used a great variety of remedies, but had never derived benefit from any thing that was done. Instead of getting better, he every year became so much worse. I tried some remedies without any advantage, and at last recommended that he should lose the limb. Mr. Travers saw the patient with me, and agreed in this opinion. Amputation was performed, and the amputated tibia is now on the table. You will see how much the lower end of it is enlarged, and that the surface of it presents marks of great vascularity. The bone, in the preparation, is divided longitudinally, and just above the articulating surface there is a cavity, as large as a small chesnut. This cavity was filled with dark-coloured pus. The inner surface of it is smooth; the bone immediately surrounding it is harder than natural. On observing these appearances, I could not help saying, that, if we had known the real nature of the disease, the limb might have been saved. A trephine would have made an opening in the

tibia, and have let out the matter. It would have been merely applying the treatment here that we adopt in cases of abscess elsewhere."—p. 397.

In about two years after the author met with a similar case, and adopted the method of seeking for the matter by the application of the trephine : it was eminently successful ; the matter flowed out through the opening, and the patient recovered. Other cases of abscess in the tibia are related by the author, where the same treatment was attended with similar beneficial results, but these have been already made known to the profession in the author's earlier works upon diseases of the bones and joints.

We have derived pleasure and profit from the task assigned to us ; and we conclude with the expression of the hope that nothing will occur to prevent the publication of the second volume which the author has so kindly, though conditionally, promised to the profession.

We believe there are very few publications on the operative department of our art which occupy a higher place in public estimation at present than Mr. Liston's truly valuable and original work on "*Practical Surgery*." We are happy to find that a fourth edition has been called for. Considerable and valuable additions have been made to it, and nearly one hundred pages of new matter added to the work. The author states in his Preface, that "the book was, contrary to expectation, most favourably received by the junior members of the profession, for whose use it was intended." We believe deservedly so, and we feel pleasure in still recommending it to their studious attention.

Most of our readers are, no doubt, familiar with the greater portion of the contents of the work before us. We think, however, it is not necessary to offer any apology for again submitting to their attention, a few interesting and important quotations, of a practical character, and which may serve to convey to those who have not as yet studied Mr. Liston's book, a tolerably correct idea of its value.

The following are some of the observations which the author makes on "*Injuries of the Spinal Column*."

"Fracture, with considerable displacement of parts (and, without solution of continuity, luxation is rare), is attended, as an immediate consequence, by paralysis, more or less complete according to the site and extent of the injury. A good case of pure luxation of the cervical vertebrae is recorded as having occurred at the North London Hospital,

under my care, in the *Lancet* for 1837-8. Fracture is produced by great force, applied either directly or indirectly to the chain of bones. The spinal marrow is torn, stretched, or pressed upon by portions of bone, or by blood. Inflammation, and its consequences, may occur, unless carefully guarded against: the period at which a fatal termination is likely to ensue, will, of course, depend much upon the part that is injured; the higher in the column, the more urgent are the symptoms, and the more complete the paralytic state. Some injuries of the spine are very quickly fatal; but even when respiration is somewhat interfered with, life is prolonged for a short time. The treatment can only palliate; motion of the injured parts is guarded against by position, and by the application of some sort of splint on either side of the spinous processes; the bladder is carefully attended to, and accumulation of urine, with its consequences, prevented. It has been proposed to make incisions on the broken bones, to examine the extent of the fracture and displacement, and to attempt removal of the pressure on the cord by trephining, by the application of pincers, &c. By these means, now generally, and very properly, looked upon as unwarrantable, effused blood could not be removed, nor lacerations repaired, while the chance of inflammatory action would be much increased. Besides, it has been most satisfactorily shewn by my friend, Mr. Gulliver, in the Reports from Chatham, that the pressure is caused generally by the broken body of the lower vertebra, which projects backwards, and is completely out of reach of any operation whatever."—p. 57.

We perfectly concur with Mr. Liston in condemning the operation of cutting down upon and trephining the spinal column. To say the least of it, we look upon it as a perfectly useless operation, and, were it only upon that account, decidedly unwarrantable.

The following practical observations on diseases of joints are well worthy of notice. The author gives two interesting cases of diseased knee-joint, the result of injury. In the first case, the tibia had been broken about two inches below the knee, and the split had extended into the joint. Synovial inflammation set in, abscesses formed around the joint, the ligaments and semilunar cartilages were disorganized, the joint itself was filled with purulent fluid, and the bone was in a state of inflammation. This state of things rendered amputation necessary; it was performed, and the patient recovered.

The second case was that of a boy, æt. 13. He had received a blow on the right ankle by a stone; this was succeeded by inflammation of the joint. Shortly after, the knee-joint participated in the disease, necrosis of the tibia had set in, the consequent discharge became profuse, hectic followed, and amputation was deemed necessary. This case terminated favourably; life was saved. When the amputated limb was

examined, it was found that the entire shaft of the tibia had become extensively necrosed, and that the new bone had been only sparingly deposited. "Upon looking at the superior surface of the tibia, a *small circular opening was observed, communicating with the knee-joint*. The whole synovial membrane was exceedingly vascular, and ulceration of the cartilage had commenced at several points." We notice in this latter case some features of resemblance between it and those described by the late Dr. McDowel of the Richmond Hospital, in the third and fourth volumes of the former series of this Journal, under the head of "Observations on Periostitis Synovitis, &c."

Mr. Liston makes the following valuable observations upon the cases we have just quoted from his work :

"From such or other causes, inflammatory action may be excited, and, being either overlooked or trifled with at first, may be permitted to gain head. Or from the first it may have been of a dangerous, violent, and intractable character : formation of matter cannot be prevented ; the articulating cavity is expanded, lined by an adventitious membrane secreting pus, and is *in fact converted into a large abscess*. The cartilage disappears by ulcerative absorption, the ends of the bones are exposed, the ligaments are softened and disorganized ; the limb becomes enormously swollen, and the joint is found *unusually loose*,—partly from the disorganized, softened, and relaxed state of the lateral and other ligaments ; partly in consequence of the muscles being weak and paralysed, as it were, by pain and disease. Any motion is performed with great suffering and agony ; and during the attempt distinct grating of the bones, one on the other, can be perceived. Such is the progress of mischief in the large as in the smaller articulations—in the elbow or knee, and in the joints of the fingers. Disease of joints is sometimes propagated from the soft parts, from injury or morbid degeneration of these. Abscess of the cellular tissue, or of bursa, often leads to affection of an adjoining articulation. Also disease originally in the head of a bone may lead to affection of the cartilage and synovial membrane. But in the advanced and more serious stages of those diseases which in this volume principally demand consideration, whether in the acute or chronic form, it is often next to an impossibility to say in what tissue morbid alteration has first commenced. By a very anxious inquiry as to whether swelling existed first, or whether constant or violent pain, increased on motion, and more severe during the night, preceded the swelling, a pretty shrewd guess may be formed,—that in the former case the synovial membrane originally underwent changes, that its capillary circulation became loaded, that it became pulpy and thick, and that its secretion became more profuse and vitiated, thus accounting for the swelling : or, that in the latter the bone was affected at the commencement, and the cartilage absorbed on one or other aspect. All this, however, will serve but little purpose, when bones, ligaments, cartilages, and synovial membrane, are equally

involved in one mass of disease, as is sooner or later the case,—whichever tissue is originally affected,—if the progress of the action be not put a stop to by energetic and well-devised means, and opportunity thus afforded for the establishment and continuance of a healthy and reparative process. As the disease advances, the general system begins to suffer from constant pain and irritation. When discharge is established, and a continued drain from the circulating fluid is thus superadded, the strength and powers of the patient gradually sink. No improvement in the health can be rationally expected from the most judicious management,—certainly not from drugs, or chemicals of any kind,—until the cause is in some way removed. A speedy improvement follows abatement or removal of the irritation and discharge, or any other favourable change of the local malady. The *treatment* necessary to control or check disease in joints, in particular cases, demands, on the part of the practitioner, a careful and proper understanding of the various pathological changes, a nice discrimination of circumstances, and a perfect acquaintance with the effects and objects of the various therapeutic means. In all injuries and diseases of joints,—in the slow strumous degenerations, as well as in the most violent form of articular inflammation,—perfect quietude and repose of the affected part form the most powerful and essential means of cure; neglect them, and all other means are found nugatory, and were as well untried. Nothing but disrepute and disgrace can accrue to the profession, and its professors, if hot irons, moxas, and issues, continue to be used inconsiderately, to the neglect of more powerful and less appalling means. Instant relief invariably follows the securing a state of perfect and absolute rest; other means, local and constitutional, are thus afforded a fair chance of doing good, and the natural efforts towards a cure are no longer thwarted and interrupted.

But above all, the effect on the general health is most remarkable and cheering. Even in very complicated and bad cases,—in which sinuses communicate with the cavity of the joint, and in which the heads of the bones are ascertained to be in a state of ulceration, or even partially necrosed,—the good effects of *perfect quietude* of the joint will soon be manifested, by cessation of the pain, diminution of the discharge, and speedy improvement of the patient's health. A cure of the local mischief by this means may not be possible, but much will often be gained as regards the success of ulterior proceedings, by the certain amendment of the patient's condition, and the rapid change for the better."—p. 144.

Considerable pains have been bestowed upon the chapter on "Injuries and Diseases of Blood-vessels:" which has been considerably enlarged by many important additions.

The melancholy list of failures furnished in the history of ligature on the arteria innominata, for the cure of aneurism, has compelled Mr. Liston to record his opinion upon this subject in the following words:

"From the fatal results that have always followed ligature of the

innominata, few surgeons would be now found sufficiently hardy to undertake such an operation: and there are no circumstances that will warrant the surgeon putting the patient to the risk of an operation which will, in all probability, prove fatal, perhaps sooner than the disease for which it is undertaken. Some years ago, a modification of this operation was proposed by Mr. Quain, and which I performed on a patient suffering from an aneurism of the subclavian, commencing immediately external to the scalenus muscle. The carotid and subclavian were secured immediately as they arose from the innominata: it was supposed that by this means the greater length of the artery from the aorta to the point of deligation, would permit a firmer coagulum to form in this situation. The patient perished from hæmorrhage on the thirteenth day.

"A clot had formed in the innominata, but the numerous branches arising from the subclavian carried on the circulation on the distal side of the ligature, and no clot formed here.

"When the ligature was beginning to be detached from the vessel, blood was freely poured from the distal extremity of the divided artery, and the patient soon perished. The man in whom this operation was performed was much reduced, and was not in a favourable state for the adhesive process to go on. Another case in which both these vessels were included in one ligature, it being the intention of the operator to secure the innominata, is mentioned by M. Velpeau, as having occurred in the practice of M. Kull of Leipsic. This case also terminated fatally."—p. 199.

We conclude this short notice of Mr. Liston's practical work, by again recommending it to the attention of our readers. It contains numerous and very valuable contributions to practical surgery; and no surgical practitioner should remain ignorant of the facts detailed in this edition of Mr. Liston's book. The illustrations are admirably executed, and reflect the highest credit, both upon the artist and the publisher.

In the twenty-seventh volume of our former series we noticed the three first numbers of Mr. South's translation of Chelius's Surgery; since then ten more have appeared.

The original was once a mere "Handbook to the Author's Lectures;" it is now "A System of Surgery," purporting to present "a complete View of European Surgery in general, but more especially of British Surgery;" and purporting also to be "well fitted to supply" a want which certainly has been, and, in our opinion, is still felt in our profession, namely, a full and comprehensive system of surgery.

We shall not, *in limine*, decide as to whether or not these important engagements, made by the translator, have been performed to the medical public: but we shall proceed to examine

certain prominent and important subjects contained in some of the parts which have appeared, and thus endeavour to ascertain for ourselves whether, in such a work as this is declared to be, they have received that full share of attention to which they were entitled.

The first subject we shall select is that of fractures; it is one of acknowledged importance, and, from its frequent occurrence, and the many difficulties sometimes attending its diagnosis, of peculiar interest to the surgeon. Of late years a great deal has been done to render this department of surgery as perfect as possible; and the contributions from our own city have been some of the most valuable that have ever appeared in connexion with this subject.

Part VI. p. 553.—XII. treats "Of Fracture of the upper Arm." Under this heading, fractures of the neck of the humerus are considered, and the translator appends the following notes:—"Fracture of the greater tubercle of the upper arm bone sometimes happens, of which there is an example in St. Thomas's Museum; the process appears as if sliced off from the shaft of the bone, and remains attached to the tendons of the outward rotating muscles." The obscure nature of certain injuries inflicted upon the upper extremity of the humerus is pretty generally acknowledged. Mr. Robert Smith, of this city, has paid considerable attention to this subject; and we find in the twelfth volume of our early series (Nov. 1837) a very valuable paper published by him, under the head of "Remarks upon certain Injuries of the upper Extremity of the Humerus."

Mr. Guthrie, in a lecture delivered by him in 1833, and published in the London Medical and Surgical Journal, and in the Lancet, made allusion to a certain injury of the shoulder joint. He states the symptoms of the accident, but asserts that "dissection has not explained it;" but he believes that it is "a longitudinal split of the humerus, so as to separate the *small tuberosity, with more or less of the head*, from the shaft." Mr. Smith has had the opportunity of following up this subject, and he has done so most successfully. We quote the case of Julia Darby, as given by him in this Journal:

"I was called upon to examine the body of Julia Darby, æt. 80, who had died of chronic pulmonary disease. Upon entering the room the appearance of the left shoulder-joint attracted my attention, and struck me as being different from those which attend the more common injuries of the joint. The shoulder had lost to a certain extent its natural rounded form; the acromion process, though unnaturally prominent, did not project as much as in any of the luxations of the head of the humerus. The breadth of the joint was doubled. Upon pressing beneath

the acromion, I could plainly distinguish a portion of the head of the bone occupying the inner point of the glenoid cavity: it formed a tumour, perceptible through the soft parts, while the remainder, and by far the larger portion of the head of the bone, lay beneath the level, and internal to the coracoid process: and between these two portions the finger sunk into a deep depression or *suleus* placed immediately below the coracoid process. The elbow could be brought into contact with the side, and there was no appreciable change in the length of the arm. Such were the external characters of the injury, and from these alone I was unable to pronounce positively as to its exact nature, but conjectured that it was some variety of luxation forwards. Upon removing the soft parts, the head of the bone presented itself, increased to nearly double its natural breadth: it lay beneath and internal to the coracoid process. The greater tubercle was completely broken off from the shaft of the humerus, and in situation corresponded to the inner part of the glenoid cavity: the fracture traversed the bicipital groove, which, in consequence of the displacement which the head of the bone had suffered, was situated exactly below the coracoid process: the glenoid cavity was changed both in form and size; it was smaller than natural, nearly flat, and broader above than below. A new shallow socket was formed for the head of the bone, upon the axillary margin of the scapula, and bony matter was deposited in the capsule, which was greatly enlarged: the cartilage had been nearly altogether removed from the head of the bone, which was covered by an ivory deposit."

Mr. Smith next enters into a careful comparison between the symptoms detailed by Mr. Guthrie as belonging to the injury which he describes, and those which presented themselves in the case of Julia Darby, and in two others which he records; and after a strict examination of the subject, he arrives at the conclusion, at which we think every impartial reader will arrive also, "that the nature of the injury was similar in all:" "that although Mr. Guthrie's conjecture approximated closely to the truth, he has not exactly made out the nature of the lesion." We subjoin the following, as expressing in his own words Mr. Smith's opinion of the fracture:

"What occurs in the cases under consideration is, in my opinion, simply this: a fracture, traversing the upper part of the bicipital groove, detaches the greater tubercle of the humerus, thus annulling the action upon the humerus of the supra-spinatus, infra-spinatus, and teres minor; the folds of the axilla, the sub-scapularis, and the anterior portion of the deltoid, then, act almost unopposed, and draw the head of the bone forcibly inwards, against the inner part of the capsular ligament, and if, at the same time, the inner border of the glenoid cavity be broken (which I suspect is by no means a rare occurrence), the head of the bone passes still further inwards and beneath the coracoid process, amounting, at length, to an actual displacement, which is permitted by

the increased size of the joint, just as a displacement of the head of the femur will often be the consequence of a fracture of the acetabulum."

Mr. Smith then follows up "the subject of displacement of the heads of bones as a consequence of fractures extending into, or in the neighbourhood of joints," by detailing the particulars of an exceedingly interesting case of fracture of the acetabulum, which was admitted into the Richmond Surgical Hospital in the year 1836, under the care of Mr. Adams. To this case there is no allusion whatsoever made by the translator of Chelius. Mr. Smith's paper appeared in the year 1837, the English translation of Chelius in 1845.

Before we quit the subject of fractures of the humerus, we are obliged to notice another omission not less remarkable. In an account of the proceedings of the Pathological Society of this city, held January 30, 1841, and given in our twenty-first volume, p. 135, we find that Mr. Smith exhibited an example of "impacted fracture through the anatomical neck of the humerus," which he stated was a rare form of injury:

"The only one of the kind he had ever seen, nor was he aware of such an injury having been already described. The accident occurred about eight years since, at which time the patient (a female *æt.* 52) was admitted into Richmond Hospital, under the care of the late Mr. McDowel, who appears to have diagnosed the injury, as it is entered in the hospital case-book as "fracture of the humerus," but it is greatly to be regretted the appearances were not recorded. The woman was again admitted into the hospital, under the care of Mr. Adams, about five years afterwards, with an impacted fracture of the neck of the femur, one month after the occurrence of which she died of diarrhœa (*a*) The shoulder-joint was then examined; the arm was slightly shortened, and the shoulder not so full and round as the opposite. Upon opening the articulation, the head of the humerus was found to be sunk into the cancellated tissue of the shaft so deeply as to be nearly on a level with the line of the anatomical neck of the bone; the great tuberosity was inclined outwards, forming a considerable curve with the outer surface of the shaft of the humerus, around the depressed head of which there was an osseous collar of newly-formed bone, largest along the inner part of its circumference."

These observations upon this interesting case of fracture, are accompanied with illustrative wood-cuts.

The prognosis of fractures of the neck of the thigh-bone is considered in p. 566, par. 672, of Chelius. The author and the translator concur in the opinion that, in intra-capsular fracture of the neck of the femur, bony union *is possible*. Cases are cited

(*a*) See Dublin Journal of Medical Science, vol. xvii. p. 31, case 35.

from Messrs. Swan and Stanley in proof of this position, and the translator mentions also a third example of bony union. This preparation, he asserts, is preserved in the Museum of St. Bartholomew's Hospital.

Another case of this description was recorded by Mr. Robert Adams, of this city, in Todd's Cyclopædia of Anatomy and Physiology, in 1839, p. 813, under the head of Abnormal Conditions of the Hip-joint. This case is peculiarly interesting. After having entered fully into the question of bony union, Mr Adams writes:

"We had thus far entered into this much-agitated question, when an interesting opportunity occurred to us of making a post mortem examination of a case of united intracapsular fracture. The history of the case was this:—

"Owen Curran, æt. 70, was for the last five years an inmate of the pauper department of the House of Industry; he was very infirm on his limbs, and his mind was in a state of dotage. On the 1st of August, 1837, while he was walking across his ward, he fell on his right side; he was unable to rise, and complained of pain in his right hip; he was carried to bed, and was immediately visited by the late Mr. William Johnston, who was then acting for me as clinical pupil, who found the limb everted, and only half an inch shorter than the other. Mr. Johnston considered the case a fracture of the cervix femoris, which required no other surgical treatment than that of placing and preserving the limb in a semiflexed position over pillows. The old man suffered but little pain in the injured part; at all events he did not complain of it. In about five weeks after the accident he was raised out of his bed, and when placed standing he was able to put the heel of the injured limb to the ground. On the 30th of September,—that is, about eight weeks after the accident,—my friend Mr. Smith entered in his note-book the following memorandum of this case:—'As the patient lies in bed he can elevate the injured limb by the unassisted efforts of its own muscles. The eversion is slight, and the degree of shortening amounts to one inch: no force can bring the limb down to the length of the other. From the history and symptoms, this seems to have been a case of *impacted fracture*.' This man survived the accident one year and nearly ten months, during which time he was contented to remain most of the time in his bed, but when placed on his feet could stand very well, and was able, but unwilling, to walk. On Tuesday, the 20th of May, he got an attack of bronchitis, which the following Friday terminated fatally. At twelve o'clock on Saturday, the 25th of May, assisted by Mr. Brahazon, and some of the pupils of the hospital, I made an examination of the body. The right leg and thigh were much everted. The trochanters major was elevated, and projected much outwards; the degree of shortening just amounted to one inch; the muscles presented a healthy appearance; the capsular ligament was of a yellowish colour, and somewhat thickened. The femur was removed from the acetabulum: this latter cavity presented a healthy appear-

ance, except towards the margin of it; here the cartilage was softened: the round ligament was sound. The head and neck of the bone had lost their normal obliquity, and were directed nearly horizontally inwards; the cervix presented, both anteriorly and posteriorly, evidence of a transverse intra-capsular fracture having occurred; the globular-shaped head was closely approximated behind and below to the posterior inter-trochanteric line, and to the lesser trochanter, so that the neck seemed altogether lost, except anteriorly, where a very well marked ridge of bone shewed the seat of the displacement and of the union of the fragments. This ridge is evidently the upper extremity of the lower fragment of the cervix. The fracture of the neck posteriorly was found to have been closer to the corona of the head than anteriorly, and the fibro-synovial fold in the former situation remained unbroken. A section has been made of the bone through the head, neck, and trochanter; one portion has been subjected to maceration and to boiling, and the bony union has been unaffected by these tests. Scarcely any portion of the neck can be said to have been left. A section of the head and neck was made. The section shews the compact line which denotes the union of the fragments; the head and shaft seem to be mutually impacted into each other, and almost the whole of the cervix has been absorbed; the line of union is serrated, solid, and immoveable; and the cells of the head and substance of the shaft seem to communicate freely in all places, except where the line of compact tissue here and there points out the seat of the welding together of the remaining portions of the head and neck of the femur. The bone was in its recent state, on the 25th of May, laid before a meeting of the Pathological Society. It seemed to be the universal opinion of the members present, that it was a decided specimen of the intra-capsular fracture of the cervix femoris, which had been solidly united by bony callus."

This communication was published in a well-known and highly-valued work, in the year 1839; the sixth part of Chelius made its appearance in 1845, and yet no allusion whatever is made in it to this extremely interesting case of Mr. Adams.

We shall now direct attention to fractures of the radius. This subject is treated of in Part VI. of the translation, p. 557, par. 653. The author remarks:

"Fracture of the spoke-bone alone is more frequent than that of the cubit, and mostly consequent to a fall on the hand when the arm is outstretched, in which case it usually happens in the middle of the bone; more rarely it is produced by direct violence. The diagnosis is not difficult; the seat of fracture is felt, and, during pronation and supination, crepitation also. The fractured end turns towards the cubit. Only when the fracture is near the lower end of the bone is the diagnosis difficult, and its confounding with sprain so much the more possible, as frequently at the first there is scarcely any or no distortion of the hand, nor is its motion interfered with. The following appearances arise from the displacement of the frac-

tured ends : the hand is more perfectly prone than if it were dislocated to the dorsal or radial side ; the lower end of the forearm is narrower, less flat, more rounded ; there is a bending inwards of the forearm half an inch or an inch above the wrist on the radial side, which extends to the dorsal surface of the spoke-bone. The head of the cubit makes a considerable projection, and the wrist-bones are now inclined to the ulnar side. The carpus seems to project somewhat on the dorsal surface of the spoke-bone, and therefore the back of the joint is generally rather swollen. On the palmar surface of the forearm, corresponding to the concavity of the spoke-bone, there is a very full, elastic swelling, often accompanied with extraordinary tension of the flexor tendons. In consequence of the depression on the edge of the spoke-bone, and the projection of the head of the cubit, the whole radial side projects more at the carpus and thumb, i. e. the hand is inclined to the radial side, and its length inclines much outwards from the forearm. The hand is moveable at the joint, and both styloid processes are in natural relation to the carpus. The patient has less pain at the joint than at the lower end of the spoke-bone ; at the depression on the radial side, and in the swelling on the palmar side, on the head of the cubit, and in the capsular ligaments beneath it, the pain is increased by pressure. On both surfaces of the lower end of the spoke-bone may be easily felt the irregularities arising from displacement of the fractured ends, and which consist in a transverse, often oblique projection of the upper end of the fracture, three or four lines above the wrist-joint, and in a less distinct projection of the upper part of the lower fractured portion on the dorsal side, eight or ten lines above the joint. Frequently, if the fracture be somewhat higher, both ends may form an obtuse angle towards the palmar surface, in which case the depression on the dorsal surface is greater. Motion and crepitation are not always felt. Jäger found the upper fractured end firmly resting on the cubit. Pronation and supination, bending and violent straightening of the hand are very painful and restricted. In pronation, the rotation of the head of the spoke-bone is wanting, the fingers are usually half bent ; the deformity is generally diminished by extension, but soon returns. The inflammatory swelling often spreads considerably. If the fracture be not, or if it be only imperfectly set, and improperly treated, the deformity and incapability of perfectly bending the hand remain. This fracture is distinguished from dislocation by the natural position of the styloid process, which has not lost its connexion with the carpus, which is moveable and has its long axis separated only a little from the spoke-bone.—(Jäger). The upper end of the fracture is somewhat displaced towards the side of extension or flexion ; but the fingers can be moved freely, and when the hand bends, the joint-ends of the spoke-bone follow the movement of the wrist-bones, by which this fracture is distinguished from dislocation.

“The fracture of the lower end of the spoke-bone is extremely well explained by the observations of Dupuytren ; and the opinion put

forward by him and by Brodie, that it is mostly confounded with sprains and dislocations, is confirmed by the more recent observations of surgeons."

The translator adds the following note: "The principal cause of the altered shape of the forearm, when the spoke-bone is broken near its base, is the constant dragging towards the cubit which is made on it by the m. pronator quadratus." In the *Leçons Orales* of Dupuytren we are informed that Pouteau, in a distinct memoir which he wrote on Fractures of the Forearm, makes mention of the fracture of the lower extremity of the radius, and distinctly states that this accident is confounded with sprains and dislocations of the wrist(a). But we believe there cannot be a reasonable doubt as to the fact, that the credit of having first distinctly and accurately described the fracture which occurs at the lower extremity of the radius, close to the wrist-joint, is justly due to the late Dr. Colles of this city. We find this valuable communication published in the tenth volume of the Edinburgh Medical and Surgical Journal, in the year 1814. Dr. Colles observes:

"The injury to which I wish to direct the attention of surgeons, has not, as far as I know, been described by any author; indeed the form of the carpal extremity of the radius would rather incline us to question its being liable to fracture. The absence of crepitus, and of the other common symptoms of fracture, together with the swelling which instantly arises in this, as in other injuries of the wrist, render the difficulty of ascertaining the real nature of the case very considerable.

"This fracture takes place at about an inch and a half above the carpal extremity of the radius, and exhibits the following appearances: the posterior surface of the limb presents a considerable deformity, for a depression is seen in the forearm, about an inch and a half above the end of this bone, while a considerable swelling occupies the wrist and metacarpus. Indeed the carpus and base of the metacarpus appear to be thrown backward so much as, on first view, to excite a suspicion that the carpus had been dislocated forward. On viewing the anterior surface of the limb, we observe a considerable fulness, as if caused by the flexor tendons being thrown forwards. This fulness extends upwards to about one-third of the length of the forearm, and terminates below at the upper edge of the annular ligament of the wrist. The extremity of the ulna is seen projecting towards the palm and inner edge of the limb; the degree, however, in which this projection takes place, is different in different instances. If the surgeon proceed to investigate the nature of this injury, he will find that the end of the ulna admits of being readily moved backwards and forwards.

"On the posterior surface, he will discover by the touch that the swelling on the wrist and metacarpus is not caused entirely by

(a) *Leçons Orales*, vol. iv. p. 161.

an effusion among the softer parts; he will perceive that the ends of the metacarpal, and second row of carpal bones, form no small part of it. This, strengthening the suspicion which the first view of the case had excited, leads him to examine in a more particular manner the anterior part of the joint, but the want of that solid resistance which a dislocation of the carpus forward must occasion, forces him to abandon this notion, and leaves him in a state of perplexing uncertainty as to the real nature of the injury; he will, therefore, endeavour to gain some information, by examining the bones of the forearm. The facility with which (as was before noticed) the ulna can be moved backward and forward, does not furnish him with any useful hint; when he moves his fingers along the anterior surface of the radius, he finds it more full and prominent than is natural; a similar examination of the posterior surface of this bone, induces him to think that a depression is felt about an inch and a half above its carpal extremity. He now expects to find satisfactory proofs of a fracture of the radius at this spot; for this purpose he attempts to move the broken pieces of the bone in opposite directions, but although the patient is, by this examination, subjected to considerable pain, yet neither crepitus, nor a yielding of the bone at the seat of fracture, nor any other positive evidence of the existence of such an injury, is thereby obtained. The patient complains of severe pain as often as an attempt is made to give the limb the motions of pronation and supination. If the surgeon lock his hand in that of the patient's, and make extension even with a moderate force, he restores the limb to its natural form, but the distortion of the limb instantly returns on the extension being removed."

Dr. Colles next alludes to the unpleasant consequences which result from an error in the diagnosis of this accident, and says:

"At last, after many unsuccessful trials, I hit upon the following simple method of examination, by which I was enabled to ascertain that the symptoms above enumerated actually arose from a fracture seated about an inch and a half above the carpal extremity of the radius. Let the surgeon apply the fingers of one hand to the seat of the suspected fracture, and locking the other hand in that of the patient, make a moderate extension, until he observes the limb restored to its natural form. As soon as this is effected let him move the patient's hand backward and forward, and he will, at every such attempt, be sensible of a yielding of the fractured ends of the bone, and this to such a degree as must remove all doubt from his mind. The nature of this injury once ascertained, it will be a very easy matter to explain the different phenomena attendant on it, and to point out a method of treatment which will prove completely successful. The hard swelling which appears on the back of the hand is caused by the carpal surface of the radius being directed slightly backwards, instead of looking directly downwards. The carpus and metacarpus, retaining their

connexions with this bone, must follow it in its derangement, and cause the convexity above alluded to. This change of direction in the articulating surface of the radius is caused by the tendons of the extensor muscles of the thumb, which pass along the posterior surface of the radius in sheaths firmly connected with the inferior extremity of this bone. The broken extremity of the radius being thus drawn backwards, causes the ulna to appear prominent toward the palmar surface, while it is possibly thrown more towards the inner, or ulnar side of the limb, by the upper end of the fragment of the radius pressing against it in that direction. The separation of these two bones from each other is facilitated by a previous rupture of their capsular ligament, an event which may readily be occasioned by the violence of the injury."

Every communication from the pen of the late Abraham Colles is deservedly entitled to respect; and we are utterly at a loss to conceive how a British surgeon, publishing a "Complete System of Surgery," at the present day, could possibly overlook so important a contribution to surgery as the one we have now given.

The subject of syphilis is brought under our notice in the Seventh Part of the work before us, p. 640.

There is no one subject in our profession on which the opinions of medical men have been so much divided as the treatment of syphilis; some maintaining that mercury is a specific for this disease in all its forms, others as positively asserting the contrary opinion. Several years back, the free and indiscriminate use of mercury was carried to a most alarming and destructive extent in this country. Salivation after salivation was prescribed for every form of this affection, whether mild or aggravated, and the most disastrous consequences were the result; nor was it until after the appearance of Mr. Carmichael's work on venereal diseases, that the minds of men began, in this country, to be alive to the evils which necessarily followed a practice that, unfortunately, had been too long and too generally prevalent. There cannot be a doubt, that to Mr. Carmichael the credit is most unquestionably due, of having been the first to promulgate a mode of treatment, calculated to do away with the horrors inseparably connected with the former state of things: and he has lived to see this treatment prevailing everywhere, and his views with regard to the administration of mercury adopted in a most remarkable extent.

Mr. Carmichael says, that the circumstances which led to the adoption of this mode of treatment was, his belief, after repeated observation, and great experience, "that there is more than one venereal poison." Yet upon this subject it would be well to bear in mind the following observations made by Mr. Carmichael himself:

"Whether the different groups of venereal symptoms which congregate together, arise from different poisons, or from other causes not very obvious, is, in a practical point of view, of no moment whatsoever, provided we make ourselves acquainted with the character and dispositions of primary affections, and also with the *groupings* of constitutional symptoms, assigning to each that mode of treatment which experience has indicated to be the most judicious."(*a*)

The translator of Chelius states Mr. Carmichael's views upon this subject, and quotes from his work, with regard to his division of venereal complaints. Having given Mr. C.'s four descriptions of primary ulcers, which he believes are each succeeded by its own peculiar set of secondary symptoms, the translator very properly quotes Mr. Carmichael's words, thus:

"If any individual object to the division of venereal complaints into four distinct diseases, the difference between us is easily reconciled. Instead of four distinct diseases, let any one that pleases consider them as so many forms or modifications of the one disease, each requiring a peculiar mode of management, and under this view every practical object will be equally well obtained."—p. 69.

After having dwelt upon the disease itself, the author and his translator next proceed to the treatment of syphilis, and state: "The opinions as to the treatment of syphilis are very much divided, and may be arranged in two classes: 1. The Treatment with Mercury; 2. The Treatment without Mercury" (Part VII., p. 655, par. 828). Now, we will not here enter into the question of the plurality of syphilitic poisons, or discuss the question as to whether certain primary sores are always followed by a certain train of secondary symptoms; but we justly complain that, from the beginning to the end of this part of the subject, no reference whatever has been made by Mr. South to Mr. Carmichael's original views regarding the treatment of this disease. Mr. Carmichael himself writes:

"Early in 1814 was published the first edition, in 4to., of my work on venereal diseases, containing plates of the four great varieties of venereal eruptions. In October, 1815, I published a paper in the Medical and Physical Journal (No. 200), containing a statement of seventy cases of venereal disease treated without mercury, the majority of which were cured (as was then thought) in an incredibly short period; and their authenticity would have been doubted, had they not occurred in two public hospitals, the Lock and the Richmond, under the observation of numbers of professional men(*b*).

(*a*) Clinical Lectures on Venereal Diseases. By R. Carmichael, M.R.I.A., &c., 1842, p. 2.

(*b*) Op. Cit. p. 215.

“ In 1818, I published a small work entitled, ‘*Observations on the Symptoms and specific Distinctions of Venereal Diseases,*’ interspersed with hints for the more effectual prosecution of the present inquiry into the uses and abuses of mercury in their treatment, which I felt much pleasure in dedicating to Sir James M’Gregor, Director-General of Military Hospitals. This mark of attention I conceived due to Sir James, in consequence of that exemplary and excellent officer having recommended my system of treating venereal diseases, to the consideration of the surgeons of the British army, although at that period I had not the pleasure of being personally known to him. In 1825, a second edition of my first work was published, with considerable additions. I have taken the liberty of obtruding these dates upon you, because in various publications, reviews, and public lectures, particularly those of Messrs. Lawrence, Bacot, and Mayo, I find the merit of commencing the anti-mercurial investigation has been attributed, inadvertently I presume, to the late Mr. Rose, Surgeon to St. James’s Infirmary, and to the Coldstream Regiment of Guards. His communication on the subject is to be found in the eighth volume of the *Medico-Chirurgical Transactions*, and was read on the 24th of June, 1817. A comparison of the date of his paper with my first publication of 1814, on the subject, without taking into consideration my lectures at the Lock Hospital in 1813, needs no comment in order to settle the question of priority; indeed he could have no intention himself of laying any claim to it, as my publication is frequently alluded to both in his communication to the Society, and in that of Mr. Guthrie, which was read on the same night, and published in the same volume.”

These lectures were published in 1842; the part of Chelius, translated by South, which we have under review at present, appeared in 1845. We are compelled to complain of the scantiness of information conveyed in that portion of the article in which the treatment of syphilitic affections is considered, and the more so, because the just claims of Mr. Carmichael to priority in the anti-mercurial treatment of syphilitic diseases, have been most unaccountably overlooked.

The subject of aneurism also is one of peculiar interest to the surgeon, and for this reason we shall select the article “*Of Aneurisms*” from Part XI. of this work, for our next consideration.

We did not expect a foreigner to be acquainted with all our writings, but we were not a little surprised to find, when the translator is particularizing the different kinds of aneurism, that no allusion whatever has been made to that form of aneurism described by Mr. Shekelton in the third volume of the *Dublin Hospital Reports*, and to which the name of “*Dissecting Aneurism*” has been given. Mr. Samuel Cooper, in his *Dictionary*, thus alludes to this peculiar form of aneurism:

"Cases of the foregoing description are sometimes termed *dissecting aneurisms*, of which the late Mr. Shekelton described one modification, *not previously noticed by any other pathologist*, and the peculiarity of which was, that after the blood had forced its way through the inner and middle coats of the vessel, it not only detached the middle from the outer coat, to the extent of four inches, but then forced its way into the canal of the artery again, through the middle and inner coats; thus two channels existed for the passage of the blood. In the end, the formation of the new passage led to the obliteration of the original one, or corresponding portion of the arterial tube."

Thus does Mr. Cooper, in this short notice, do justice to the merit of our countryman, the late Mr. Shekelton. The following extract is from the original paper:—

"Two instances have occurred in my dissections in which the aneurismal sac communicated with its own artery by a distinct opening at some distance from the regular opening of the artery into the sac, and thus two channels for the blood into the artery, beyond the aneurism, were established, the one through the canal of the artery, as in common aneurism, the other through the sac."(a)

In this part also the treatment of aneurism by compression is brought under our notice. Several names, viz., Guattani, John Hunter, Sir W. Blizard, Freer, Richerand, and Dubois, are mentioned in connexion with this plan of treatment. The various modes of applying compression, and the results which followed in certain cases, are stated at length. The writer then observes:

"Compression for the cure of aneurism, has however, been little thought of, or employed in this country, till within the last four years, when it was revived by Hutton of Dublin for a case of popliteal aneurism, as large as a hen's egg, as the patient would not submit to the operation of tying the femoral artery."

We acknowledge this as a well-merited tribute of respect to Dr. Hutton, for unquestionably to him belongs the credit of having, within these few years past, *revived, and successfully adopted in this city*, the plan of treatment by compression of the artery leading to the aneurismal tumour.

Dr. Hutton's case, treated by compression in November, 1842, is cited; Mr. Cusack's case is next given; and two cases under the care of Dr. Bellingham, one in the spring of the year 1843, the other in 1844, are also quoted. The modes of compression which were employed, the situation where the compressing force was applied, the results of the several cases,

&c., are given in detail. We cannot, however, withhold the statement of a fact of which we ourselves have been cognizant for many years past. In the winter session of 1826-7, and during several subsequent sessions, we had, in common with many others, the privilege of attending the lectures delivered by Mr. Robert Adams in the Richmond Hospital School of Medicine. The surgical anatomy of the arterial system constituted an essential portion of his course, and those who have enjoyed the opportunity of an attendance upon those lectures cannot easily forget the sound practical information, conveyed as it was in the most attractive and impressive style, which breathed through every sentence. We remember most distinctly, about the session of 1826-7, and during many subsequent sessions, to have heard him make use nearly of the following words, whilst lecturing upon aneurisms of the popliteal artery, and the various modes of treatment recommended and adopted for their cure, which we here quote from our note-book of that period.

“Compression upon the femoral artery, in the upper third of its course, has been recommended and tried; and we are indebted to the late Mr. Todd, of this city, for the successful introduction of this method. The instrument employed by him resembled somewhat a common truss. He adopted this mode of treatment in two instances in the neighbouring hospital; in the one, the pain was so severe that the patient refused to submit any longer to the compression, but in the other the patient was rewarded for his fortitude; he continued to endure the pain produced by the instrument with the greatest patience, until finally the aneurism was cured.”

In our last Number it was mentioned that in the year 1816 allusion was made to the subject of compression for the cure of aneurisms, by Sir P. Crampton, in the *Medico-Chirurgical Transactions*; but we again think it due to the memory of the late Mr. Todd to state, that *he was the first in these countries who successfully employed compression upon the femoral artery as a cure for popliteal aneurism.*

In the third volume of the *Dublin Hospital Reports*, Mr. Todd published an Essay on Aneurisms, in which we find that the effect of pressure was tried by him for the cure of popliteal aneurism in the year 1820, his object being, in his own words, that, “*by diminishing the current of blood in the trunk of the artery, so as to favour the coagulation of the contents of the sac, a cure without operation might be effected.*”(a) We request the attention of our readers to the expression, “*diminishing the current of blood in the trunk of the artery,*” &c. The term “obliteration

(a) *Dublin Hospital Reports*, vol. iii. p. 232.

of the current" is not employed, for it would appear that, in Mr. Todd's opinion, such was not absolutely necessary, and that, by effecting merely a diminution of the current in the trunk of the artery, a coagulation in the contents of the sac would follow. To this important paper of Mr. Todd's no reference whatever has been made by the translator, when speaking of the "treatment of aneurism by compression."

The editor of this Journal quoted Mr. Todd's paper at length in his article on "The History of the Cure of Popliteal Aneurism by Compression," in our last Number, to which we refer our readers for a full statement of what has been achieved by Irishmen in this important discovery.

Practical surgeons have been long acquainted with the subject of traumatic aneurism occurring at the bend of the elbow; and it is of the utmost consequence that they should be perfectly conversant with the treatment best suited to every emergency, considering the many accidents which occur in this situation, from the attempts made by ignorant persons to perform the operation of venesection. We shall select the following observations from the work before us—Part XI.

"III.—Of Aneurism of the Brachial, Ulnar, and Radial Arteries.

"1461. Aneurisms of the brachial artery and its branches are almost always consequent on wounds, and occur most frequently at the bend of the arm, after a wound of the artery in bleeding. In these aneurisms, therefore, compression is commonly employed with the best results. ['I do not recollect,' says Sir Astley Cooper, 'to have seen a case of aneurism from disease in the brachial artery.'—p. 78. Hodgson observes: 'I have never seen an aneurism in the arm which was not produced by accidental violence.'—p. 389. Liston also speaks of the rarity of spontaneous aneurism at the bend of the elbow, and says: 'I have treated but one such case, in the person of an old ship's carpenter. While at work as usual he felt something snap in his arm, a pulsating tumour was soon after noticed, and it had attained, during four months, fully the size of a hen's egg, and was evidently, in part, made up of solid matter. The brachial was tied, and everything went on favourably.'—p. 181.]

"1462. If the aneurism be seated in the trunk of the brachial artery, at the bend of the arm, or in the ulnar, radial, or interosseal artery, near the bend, it is sufficient to tie the brachial artery; but if it be situated in the middle of the forearm, in the region of the wrist, it is necessary to tie the artery near the aneurismal sac, because the free anastomosis on the back of the hand is sufficient to support the aneurism by the reflux of the blood.

"The free anastomosis of the arteries of the arm always renders it advisable to undertake tying the artery near the sac, because in many cases the regurgitation of the blood continues the growth of

the sac, and causes its bursting (par. 1423). In an aneurism originating from wound of the artery, in the middle of the arm, when the sac does not extend far upwards, the opening of the sac is to be effected according to Hunter's first plan."—Part XI. p. 251.

In these few sentences the entire subject of brachial aneurisms is disposed of in this section, the only one, by the way, to which the consideration of the subject, properly speaking, belongs.

It is pretty generally known that four forms of aneurism may result from a wound, in venesection, of the brachial artery at the bend of the elbow, viz.: circumscribed false aneurism, diffuse false aneurism, aneurismal varix, and varicose aneurism. These several forms of this disease require distinct consideration, and the proper treatment adapted for each it is of the utmost consequence to determine.

In cases of simple wound of the brachial artery, as in venesection, where there is no extensive effusion of blood to create alarm, we are no advocates for immediate operation. One of the most unfortunate cases of wounded brachial artery we remember to have ever witnessed was that of an individual, where the surgeon was too ready to cut down upon the wounded vessel, and to tie the artery above and below. The constitutional disturbance consequent upon the original injury, and the shock sustained from the alarm and the precipitancy of the operation, induced such a state of the system as was unfavourable for the healing of the parts. Secondary hæmorrhage was the result, repeated operations followed, the last of which was a ligature upon the artery, close to the axilla, and it was not till a very considerable length of time had elapsed, that the patient was able to leave the hospital. In a case of this description, where the injury in the commencement is so simple in its nature, we believe the best plan that could be adopted, would be, to apply judicious compression by means of graduated compresses upon the injured part, and to surround all by means of the figure of 8 bandage, coiled round the elbow a sufficient number of times to secure the compresses in their proper situation; or, as some prefer, the fingers individually, the hand, forearm, and arm, may be enveloped in a bandage, the compresses having been previously applied to the wounded part. This mode of treatment by compression, in conjunction with proper position, absolute rest, low diet, &c., has proved in such cases eminently successful, and until it fails we believe an operation is unnecessary, and may be mischievous. When, however, matters are not so favourable, where the wound is large, and the exposed artery lies bleeding in it; or where, from

some cause or other, the extravasation of blood becomes considerable; when the cellular membrane of the limb becomes distended with arterial blood almost to bursting; when the tumefaction occupies part of the forearm, and the arm as high as the axilla; when the surface becomes discoloured, and the limb extremely painful, what line of practice should the surgeon now adopt? Compression will be worse than useless, and the single ligature on the artery above the wound totally ineffectual. Moreover, it should not be forgotten that a high bifurcation of the artery may exist near the axilla, and that, in such an abnormal arrangement, the radial and ulnar arteries, in their course down the arm, frequently anastomose with each other by means of a transverse branch of communication. Should this happen in the case we have mentioned, and such cases are by no means very rare, it is clear, that the single ligature on the artery leading to the wound will not suffice; the anastomosis between the two vessels will pour the blood freely into the aneurismal sac, and the hæmorrhage will continue without control. We believe, therefore, in such a case of diffuse traumatic aneurism, there is no time to be lost, and that the only operation which can with confidence be relied on, is, to cut down with a free incision upon the wounded vessel, to turn out the coagulum of blood, and to tie the artery above and below.

Circumscribed aneurism is another consequence of wounds of the brachial artery. The opinions of surgeons have been divided upon the treatment applicable to such cases, some recommending operation, others merely compression. We believe that practical surgeons are, at present, pretty generally agreed upon this subject, and that cases of this description should, in the first instance, be treated by compression. In the first volume of the *Dublin Journal*, pp. 117, &c., we have an account of three cases of traumatic aneurism at the bend of the elbow, treated by Mr. Cusack by compression. The compresses were applied chiefly upon the tumour; the compressing force was moderate; the limb was bandaged from the fingers upwards, according to Genga's method. Blood was taken from the patients by venesection, digitalis administered, and absolute rest and low diet enjoined. The two first cases terminated favourably under this treatment. During the treatment of the third case, the circumscribed false aneurism became diffuse:

“It extended up along the inner edge of the biceps muscle, towards the axilla, for several inches. The whole swelling, but particularly the upper part, was soft and fluctuating, and the pul-

sation throughout was not very distinct. As the case had clearly changed its nature, it became necessary to consider what was the best method of treating it, it now being a case of diffused false aneurism. In consultation, it was determined to treat it as a wounded artery; accordingly, an incision was made along the course of the original aneurismal swelling, including the cicatrix, through both skin and fascia. The coagula having been turned out, a gush of florid red blood directed the operator to the artery at the bottom of the cavity; the aperture in the vessel was perfectly circular, and engaged at least half of its diameter. *The hæmorrhage continuing after the ligature was applied above the wound in the vessel, another was applied below; the hæmorrhage instantly ceased;* light dressings were applied, and the arm laid upon a pillow.”—p. 123 (*op. cit.*)

This third case was the only one in which pressure was applied to the artery *above* the tumour. If, in the case of circumscribed aneurism, the plan of treatment by compression shall have failed merely, without having caused any additional injury to the sac, the artery leading to the aneurism may be included in a ligature, and compression of the entire limb, as far as the elbow, may be employed with advantage. If, however, these methods should finally fail, or if the aneurism should afterwards become diffuse, we believe no experienced surgeon would hesitate in cutting down upon the wounded vessel, and tying the artery above and below. We select the following quotation from Professor Harrison’s “Surgical Anatomy of the Arteries:—

“I do not recollect a case of this sort of *circumscribed aneurism*, from the infliction of a simple wound, in which it has been necessary to open the sac, or tie the artery below it; I am therefore disposed to place full reliance on the practice of simply laying bare the vessel as close to the tumour as circumstances will permit, and tie it with a single ligature.”

The late Dr. Colles was of the same opinion. In speaking of *diffuse aneurism* at the bend of the elbow, from wound of the brachial artery, Professor Harrison observes:

“In one instance I saw the disease extend from the elbow near to the axilla. In such cases of diffuse aneurism the plan of treatment by compression, or the simple operation of tying the brachial artery in the upper part of its course, that is, immediately above the tumour, may sometimes (though, I fear, will very rarely) succeed; there can be no objection, however, to a cautious trial of pressure, aided by judicious constitutional treatment; this attempt, however, ought not to be persevered in too long, unless symptoms of improvement be soon manifested. Many years since I saw a case

of this diffused aneurism, in which the simple operation of tying the brachial artery in the upper part of its course was performed with success by Mr. Wilmot, in Jervis-street Infirmary, and a perseverance in the use of moderate compression, for some weeks after the main artery was thus tied, caused the total disappearance of the disease. A few such cases at one time made such an impression on my mind, that I was of opinion that the simple operation of applying a single ligature at the upper part of the tumour would suffice for the cure of the *diffused*, as I do believe it will in almost all cases of the *circumscribed aneurism*. *I now believe that very few cases of diffused aneurism, either of this or any other artery will admit of cure from the simple operation and application of a single ligature to the artery above the injured part, but that it will be almost always necessary to lay open the tumour by a long incision, which should include, if possible, the original wound. When the injured vessel shall have been exposed, it may be raised by a probe, either introduced into it through the wound, or the aneurism needle can be passed around it, and the artery tied first above and then below the opening."*(a)

We quote the following from Professor Porter :

"But there is still another case; and let us suppose a limb, into which a quantity of blood has been extravasated, not sufficient to cause a gangrene of the part, but still too abundant to admit a hope of its being absorbed. Here, I apprehend, the surgeon has no choice; he must cut down, turn out all the coagula he can reach, in this way getting rid of that which would be a subsequent source of irritation, and then tie the vessel above and below the aperture."(b)

Whether a sufficient degree of importance has been attached to this interesting subject by the author or translator of this "System of Surgery," we now leave it to our readers to determine. We cannot, however, bring our observations to a close without remarking that, in a very few sentences, within the limit of a single page, has this most important and practical subject of traumatic aneurism of the brachial artery, at the bend of the elbow, been disposed of; whilst—will it be believed?—no fewer than four very closely printed pages, and these, too, of very small type, have been devoted by the translator to the tedious, barbarous, and useless operation of trephining the spine, in cases of depressed fractures of the vertebræ. Of this operation the translator of Chelius speaks in the following favourable terms:

"This treatment of a compressed brain, with symptoms of compression, being that which is thought necessary by all surgeons of

(a) Harrison's Surgical Anatomy of the Arteries, 4th edition, 1839, pp. 187. &c.

(b) Porter on Aneurism, p. 138.

experience, it seems to me that the analogy is so close, as regards compressed spinal cord, that *the operation is not merely permissible, but is called for imperatively, and I fully agree with Jæger, that the earlier it is performed the better.*"(a)

Chelius himself is opposed to the operation as a means of cure, and remarks, speaking of "fracture of the vertebræ with impression:"

"This operation has been performed by the younger Cline, Wickham, Attenburrow, Tyrrell, Holscher, Smith, and Rogers, *but the result in every case was unfortunate*; experience has not, therefore, yet contradicted the opinion given by Charles Bell, which is directly opposed to Astley Cooper's, in reference to trephining the spine, and it is only to be considered as a means of alleviating the patient's condition."(b)

Whatever may be the opinion of "*all surgeons of experience*" with regard to the "treatment of a compressed brain with symptoms of compression," we are not at present about to decide; but of this we are certain, that few surgeons of experience would now-a-days be disposed to adopt the recommendation of Mr. South in compressed fractures of the bones of the spinal column.

Our time and space will not allow us to enter at greater length into the analysis of this work; indeed we fear we have already trespassed at too great length upon our readers' patience; but when the pretensions contained in the "prospectus" are considered—when it is remembered that the work under review is stated as having "so increased in extent and importance" as to present a "complete view of European surgery in general, but more especially of British surgery"—when it is recollected that this production is styled "*A System of Surgery, well fitted to supply the acknowledged want*" of our profession, and that "such practical observations" have been added, "as may assist in bringing the work up to the present standard of surgery in England,"—it will not appear out of place in us, to have asserted the just claims of our countrymen, and to have pointed out some of the several omissions which we noticed during our examination into the contents of the work before us.

The general estimation in which Mr. Ferguson's work has been held by the profession has led to the appearance of a second edition. In the preface to this edition the author informs us that "considerable additions have been made, and ad-

(a) Chelius, part vi. p. 542.

(b) Op. cit. p. 538, par. 616.

vantage has been taken of the suggestions of the reviewers, to alter and amend whatever seemed faulty or defective." Further on he observes:

"The arrangement, the manner in which the subjects have been treated, and the illustrations, are all different from any of the kind in the English language. It is not intended to be placed in comparison with the elementary systems of Mr. Samuel Cooper, Mr. John Burns, Mr. Liston, Mr. Syme, Mr. Lizars, and that excellent epitome by Mr. Druitt. It may with more propriety be likened to the *Operative Surgery* of Sir Charles Bell, and that of Mr. Averill, both excellent in their day; or the more modern productions of Mr. Hargrave, and the *Practical Surgery* of Mr. Liston, which are so well known, and so justly appreciated, that no praise of the author of the following pages, can possibly add to the estimation in which they are held."—p. ix.

Notwithstanding the modesty of the author, we believe this edition will be found equally popular, if not more so than the former. It is a work of decided merit, and will be found useful both to the student and practitioner.

We select the following extract as a specimen, and as an example of its practical character. In speaking of dislocation of the astragalus, the author writes:

"The astragalus is occasionally thrown out of its position, under the influence of a similar kind of force as that which would, in other instances, produce fracture of one or both bones of the leg, or displacement of the whole foot at the ankle-joint. Perhaps in general a greater power is required to detach this bone from its strong connexions with the os calcis, and force it from under the tibia and fibula, than would occasion any of the injuries alluded to; yet I have known it driven partially from its position by a degree of violence which was supposed to have caused merely a simple twist or sprain. The bone is almost invariably thrown forwards, in front of the external malleolus; in some rare cases the integuments are not wounded, but in general a portion of the bone projects, and sometimes it is, in a manner, completely detached from all its connexions. In the museum at King's College there is an astragalus preserved, which was thus forced out of its situation, and the surface is completely divested of all fibres and ligaments, as if the dissector had carefully removed them with a knife.

"From the manner in which this bone is protected by the malleoli, it is barely possible that displacement outwards or inwards can occur, and it is very unusual to see it backwards. Mr. Benjamin Philips has related two cases of the latter kind in the fourteenth volume of the *Medical Gazette*, and I have myself met with an instance; at first it was treated as a severe contusion of the ankle, and it was only after the swelling had partially subsided, and at a

period when it was too late to make any attempt, with propriety, to replace the bone, that this feature in the case was discovered. An effort was subsequently made by a charlatan to put matters right by force, but it nearly cost the patient his foot. The bone projected so far back as to touch the tendo Achillis; yet although he was exceedingly lame for many months after the accident, I observed a gradual improvement, and have since heard that he has, in a great degree, recovered the use of the foot and ankle. There is a cast of this foot in my part of the collection at King's College; at a first glance it is difficult to perceive that any thing is wrong, but, on a more careful inspection, the fulness in the front of the tendo Achillis becomes apparent.

“Dislocations of the astragalus, in any direction, and under any circumstances, must be looked upon as a very serious injury; for although many instances have been seen where life and limb have been preserved, even under great disadvantages, it must be admitted, that such satisfactory results have not always followed the praiseworthy attempts of the surgeon to avoid amputation.

“Under ordinary circumstances, and if the case is seen soon after the accident, an attempt should be made to replace the bone, by pushing it with the thumbs into its natural position, whilst extending force is applied by pulling the foot downwards in the long axis of the leg; and should the effort succeed, the treatment may afterwards be conducted as if the case had been one of severe sprain: leeches, rest, warm or cold applications, anodyne and stimulating liniments, with bandages towards the latter part of the attendance, may one and all be requisite, and probably the bandages with starch (to be afterwards more particularly alluded to) might be highly serviceable. It has been proposed, in cases where the reduction is difficult, to divide some of the neighbouring tendons by subcutaneous incisions, and possibly, in certain instances, there might appear some encouragement to do so: certainly the practice would, if judiciously applied, do no harm.

“When the integuments are extensively wounded and much stretched, as happens when the bone is thrown forwards, it may be a question whether an attempt should be made to push it into its natural position, or that it should be entirely removed. I should be inclined, under such circumstances, to adopt the latter practice, more particularly if the bones seem but loosely connected to the neighbouring parts; indeed it is scarcely possible to imagine it being otherwise; and were it replaced, it might act more as a foreign substance than in fulfilling the object to be kept in view, viz., that of bringing the ankle as much into its natural condition as the nature of the accident will admit of. The removal of the bone in the state of the parts above described can be attended with little or no difficulty, and I believe there will be more likelihood of saving the foot by this proceeding than by replacing it. The success of this practice has been so frequently proved, that in any instance of displacement of the bone, where the skin and other textures happened

to be extensively stretched, although not torn or wounded, and where I found it impossible to reduce the dislocation, I should consider that there would be less risk were the bone cut down upon and removed, than if it were left in its new and unnatural position, more particularly if immediate union of the wound were effected, and great care were taken to subdue the inflammation likely to result from such an extensive injury. I have met with one example of an unreduced dislocation of the astragalus forwards: the accident had occurred many years previously, and the person, an active old soldier, had regained a tolerable use of the foot and new ankle-joint, which was formed partly on the upper surface of the os calcis and posterior portion of the displaced bone; he required the use of a stick, however, and walked on the fore-part of the sole of the foot, which pointed downwards, like a person who had recovered after dislocation of the femur from hip disease, of which distortion there is a good illustration in page 304.

Mr. Ferguson has devoted his consideration chiefly to the subject of operative surgery. As a book of reference, it will be useful in this department; and though it may not contain every thing relative to this subject, it will be found that the author has, at all events, made no engagements which he has not well and ably performed. The work is beautifully illustrated with numerous wood-cuts, executed in the very best style.

Professor Miller informs his readers, in his Preface, that his work is "intended to exhibit a condensed view of the principles of the healing art," and that "it contains the substance of the author's systematic lectures on this subject." It is chiefly designed for the student, and the author offers the volume to his own pupils as a book of reference as well as a text-book, at the same time expressing the hope "that to others it may prove of service, as a concise exposition of the science of modern surgery."

The work opens with an "Historical Notice" of the rise and progress of surgery. A great deal of care seems to have been bestowed upon the subject of inflammation, and the author has spared no pains in rendering the numerous and disputed points connected with it, as clear and intelligible as possible to the mind of the student.

We shall give our readers the following quotation upon the theory of inflammation:

"The transition may be conveniently subdivided into three stages: 1, simple vascular excitement; 2, active congestion; 3, true inflammation. We cannot yet state with certainty the exact details of the process, but believe them to be nearly as follows:

"*Theory of the Inflammatory Process.*—Let us take a common surgical
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cal example,—the application of some acrid substance to the skin. Each component texture of this part may be affected so soon as brought in contact with the irritant; yet it is not improbable that one texture may be involved sooner and more seriously than the other. This one is the nervous; and hence immediate pain, by the effect on its sensory portion. An impression is thus conveyed from the part to the nervous centre; thence follows, by reflex action, a stimulus to the vascular tissue of the part, already roused by the direct influence of the irritant, and that stimulus is in due time obeyed, as if both part and system resented the injury, and had resolved to resist or repair the evil by a functional effort, the greater share in which falls to be borne by the blood-vessels(a).

“The time which elapses between the application of the exciting cause, and the establishment of the vascular action thereby induced, is termed the period of incubation; varying as to duration,—in some cases very brief, in others protracted,—always valuable with regard to treatment.

“1. The action commences with determination of blood to the part; an unusual amount of the fluid reaches it, and is sent through it with an augmented velocity. At first, the capillaries and minute arteries (those vessels mainly concerned in the change) are of diminished calibre; a change resulting from an inherent contraction of their walls, or, secondarily, from a contraction of the parenchyma, or, as is most probable, from both of these circumstances. But soon this spasm, or increase of tone in their coats, passes off; they gradually yield before the increased and increasing flow, while yet the rapidity of this is by no means diminished. After a short time, the spasm has not only disappeared, and the wonted capacity been regained, but dilatation beyond the normal standard is begun. Capillaries, which previously contained but single files of the red corpuscles, now admit of them rolling through in masses, and these come crowding in; in consequence, vessels formerly invisible are now seen plainly; and the accelerated motion of the general current is yet unabated. In such a state of matters, it need afford no surprise to find a tendency to unusual transudation; in other words, along with an increased circulation comes an increase of the ordinary function of the circulation. The blood parts with a portion of its contents more liberally than in quiet health. The transudation may be at first chiefly serous; but if such action be sustained for some time, the liquor sanguinis is found in the interstitial

(a) Mr. Wharton Jones ingeniously supposes that the initiatory effect on the nerves of the part is double; first, on the sensor nerves; secondly, on those of motion, producing excitement of the former, depression of the latter. That the exciting cause acts “primarily on the sensitive nerves, exalting their activity. The motor nerves of the vessels which have sympathetical relations with the excited sensitive nerves, are secondarily affected. But this affection of the motor nerves of the vessels, which supervenes by reflex action on the excitement of the sensitive nerve, is not a corresponding state of excitement, but an opposite one of depression, of suspension of action, of paralysis.”—*Brit. and For. Rev.*, vol. xxxiv., p. 582. On this state of secondary nervous depression, he conceives that the subsequent dilatation of the vessels depends.

spaces. The natural function of the part is exalted; if this be secretion, the secreted fluid is increased in quantity, yet with its normal quality scarcely, if at all, changed. Nutrition is exalted, and the fibro-cellular tissue is fuller than before, giving slight increase of bulk. Thus is constituted the first stage, simple vascular excitement, not inconsistent with health, but rather its mere exaltation, synonymous with the vital turgescence of some physiologists. The part contains an increased amount of blood; its circulation is unusually active, and there is a marked tendency to increased exudation, partly serous, partly of a plastic kind.

"How such a state is produced we need not here stop to inquire. According to some, it is by an increased effort of the blood-vessels themselves; while others attribute all to the blood, and to an exaltation of the vital affinities between its own component parts, and between these and the solids through which it circulates. It is not improbable that both causes are concerned in the change.

"The exciting cause having been removed, the action may soon subside, and the part regain quiescence; or, the exciting cause remaining, the action is sustained, yet without proceeding to a higher grade, and a salutary result is probably secured thereby. For instance, it is by the continuance of such simple action that the conjunctiva resents the presence of a grain of sand, and often succeeds in washing it away by the increased effusion. But the exciting cause remaining, or being severe in its nature, though of brief application, there is neither abatement nor simple maintenance of action, but advance; and this brings us to the second stage.

"*Active Congestion.*—The vascular commotion extends on the cardiac side of the affected part; the arterial trunks feeding it have partaken in the excitement, are begun to enlarge, and are pulsating with an unwonted energy. Much and more blood is sent down to the part, and the capillaries and minute arteries begin to give way beneath their burden; hitherto they were simply dilated, retaining their tone, and controlling the circulation of their contents; but now enlargement is about to be merged in over-distension, the vascular coats gradually parting with their tone; and partly from this cause, partly on account of change in the blood itself, which seems more viscid, with its corpuscles less distinct, and when examined by the microscope is found especially to possess an increased number of colourless 'lymph globules,' unusually adhesive to each other and to the walls of the vessel, and so manifestly operating obstructively,—and partly also, it is probable, from an increase of vital attraction between the blood and surrounding parenchyma, the circulation loses its acquired rapidity, and becomes slower even than in health. The red corpuscles are no longer limited to the central current, but are encroaching more and more on the lateral and clear 'lymph spaces.' Exudation is more copious than in the previous stage; it consists of serum and of liquor sanguinis, the latter usually predominating; and when the action has been for some time sustained, and, as it were, established in the part, fibrin alone

can be deposited. The fibrin of the blood is increased, not only in quantity, but also in plasticity, or tendency to become organized. The natural function of the part is not simply exalted, but begins to be perverted; for example, secretion is not only increased, but changed in its character. By the fibrinous interstitial deposit the texture of the part is softened and enlarged. The 'formative power,' as it is termed, of the part, is impaired or overborne; the supply of plastic material is greater than can be usefully and normally appropriated by the implicated tissues. Nutrition, or the normal and vital relation which subsists between the living tissue and nutrient materials contained in the blood, is becoming more and more disturbed; and this, perhaps, constitutes the most important part of the inflammatory process, leading ultimately to change of structure, more or less permanent, and more or less inimical to resumption or continuance of normal functions.

"Thus is constituted active congestion; the arterial trunks in increased play; the amount of blood in the part still farther augmented; its vessels beginning to be over-distended, and losing tone thereby; its circulation becoming slow; its blood undergoing change, the fibrin especially being increased, both in quantity and plasticity; function and nutrition perverted. We are leaving the confines of health, and have, indeed, already made some progress into the territory of disease.

"This action may resolve after the removal of its simple exciting cause; or it may be sustained for some time, as in the healing of wounds and the closing of ulcers; or it may advance to

"III. *True Inflammation.*—The change which, in the preceding stage, had begun in the blood, is now completed. The over-distension of the capillaries is established; the capillary power is for a time gone, perhaps in consequence of diminution or actual suspension of the nervous influence; and the coats of the capillaries and other vessels are thickened, softened, and impaired in cohesion, being themselves the subjects of structural change. The languor of circulation approaches stagnation, and at some points this has actually occurred; every part of the distended capillaries is occupied by crowded, coloured, and colourless corpuscles; partly, it may be, from increased attraction between the former and the surrounding parenchyma, partly by accumulation and adhesion of the latter to each other and to the capillary walls. The altered liquor sanguinis is exuded in profusion. The capillaries also give way in their coats, and from the lesion blood is extravasated in mass. Suppuration is in progress by extra-vascular degeneration of the fibrinous effusion, or else by a secretive elaboration of it ere yet it has left the vessel. Breaking up and disintegration of texture ensue, according to the extent of extravasation and suppuration; and the disintegrated texture is commingled with the effusion. The formative power has ceased, and the opposite condition, a tendency to disintegration, from diminution of vitality, has become established. Disorder of function is complete; secretion, for example, being in

the first place arrested, and, when restored, more vitiated than before."—pp. 42, &c.

Our space does not allow us to follow the author at greater length. The same accuracy of observation and reasoning which may be noticed in the extracts we have given, continues to be displayed in the remainder of that portion of the work devoted to the consideration of inflammation in its various modifications and results. We could greatly wish that the subjects treated of in the after part of the volume had received a fuller proportion of Professor Miller's attention, and less of his condensing powers. We entertain no doubt, from the ability of the author and the advantages he enjoys, he would add considerably to the value of his book if, in a future edition, he would dwell at greater length upon those special and most important surgical subjects, of which, we think, he has given rather too "condensed a view" in the present edition.

Remarks on the Dysentery and Hepatitis of India. By E. A. PARKES, M. B., Late Assistant Surgeon H. M. 84th Regiment. London. 1846. 8vo. pp. 271.

THE diseases of India have at all times engaged the most earnest attention of the Army and Navy Medical Boards, not less from their disabling influence, than the marked and rapid tendency which they constantly manifest towards a fatal termination. Their very baneful consequences to our troops, both European and native, have also, on many occasions, awakened in the minds of British statesmen, connected with the Government of that country, reflections of the deepest moment, in regard to its social and political relations generally. In a purely professional point of view, the subject is one of vital importance and, therefore, claims the most serious consideration of every medical man resident in India, under obligations of more than moral necessity. Several very valuable and interesting publications have of latter days issued from the pens of medical officers employed in that service, which, while they bear evidence of ardent zeal and untiring industry in the cause of science and of humanity, have contributed much to enlarge the domains of pathological research, and have also added to the rapidly advancing paces of medical literature.

The author, while serving in the capacity of Surgeon to Her Majesty's 84th Regiment, stationed in India, appears to have

had very ample opportunities placed within his reach. He tells us that the idea of the present undertaking had entered his mind while he was engaged in the study of tropical diseases; and that it was his original intention to discuss those questions relating to dysentery and hepatitis, about which differences of opinion still prevail, but he subsequently so far modified the plan of his work, as to throw it into a systematic form, abstaining as much as possible from points already detailed in systematic works, and upon which he had nothing new to communicate. He has drawn his observations chiefly from Europeans of his own regiment. He had also the opportunity of making observations among several Asiatic nations, and dissecting the bodies of those that died in gaol. The latter he brings forward in order to illustrate the identity in the morbid anatomy of dysentery, among Asiatics and Europeans.

In opening with the subject of acute dysentery, he expresses his surprise at finding among Indian Surgeons considerable difference of opinion, as regards its nature and treatment, and more especially in reference to its mode of combination with hepatic and other complaints. He alludes to the discrepancies which are to be met with in the works of Twining, Annesley, Johnson, and Copeland, relative to the seat of dysentery, the nature of the inflammatory appearance in the large intestine, and the precise relation which it bears to the disease itself, whether in the light of a cause, a coincidence, or a sequence. The chief grounds which form the bases of his statements are derived from a dissection of fifty cases of acute dysentery fatal in Europeans, and twenty cases fatal in Asiatics, with twenty-four cases of hepatic abscess, in the majority of which dysentery was present. In addition to these he had observed a number of cases at two stations in India and in Burmah.

Having admitted the inflammatory nature of dysentery he affixes to it the special peculiarity of exhibiting ulceration of the large intestine very rapidly, and adds that, with the exception of one rare form, "a case *never* presents true dysenteric symptoms without ulceration being present." This is his first point of discussion, and in fact constitutes the essential and striking novelty in his work. He further observes, that this tendency to ulceration does not arise from the severity of the inflammatory action, for he has noticed it to occur in comparatively mild cases, and inasmuch as simple inflammation *per se* has no such tendency, the question arises, what is the essential and efficient cause of this rapid ulceration? He supplies an answer in the assertion, that none of the writers on dysentery, however admirable in other respects their works are acknowledged to be, have

sufficiently investigated the state of the colonic mucous membrane, immediately prior to the formation of the ulcers; and informs us, that in the Madras Medical Journal for 1843 and 1844 he had reviewed this subject, and published certain statements respecting the anatomical signs of dysentery, in which he endeavoured to substantiate his views, namely:

“That it is owing to the glands of the mucous membrane being particularly implicated in the inflammatory action, that ulceration so rapidly and so readily occurs in the common form of dysentery.”
—p. 13.

He further tells us, that he is convinced of their entire correctness from repeated dissections, as well as communications from several of his medical friends in the Madras Presidency. He then lays down a series of positions explanatory of his views, which he arranges in order, and considers under separate heads. His first position or statement is: “That there exists on the inner coat of the large intestines, a set of solitary glands peculiar to that particular mucous membrane.” He says, that they are different from the common follicles generally distributed over mucous membranes, and are very evident in many diseases of the liver, particularly in cirrhosis with ascites, where they are much enlarged. When the membrane is healthy they are hardly visible, but are enlarged and very visible at the commencement of dysentery; the few cases of dissection at so very early a period of the disease causing them to be generally overlooked. He does not consider them large mucous crypts (follicles?), as they have the appearance of round, opaque bodies without apparent orifices, imbedded in the mucous membrane, and apparently attached to the submucous tissue. In the early stage of dysentery their contents are yellowish white, thickened and somewhat starchy, sometimes streaked or striate on the surface, with a small black point on the summit resembling a closed orifice, the latter appearance not being general or even of common occurrence. Under the microscope, the mucous membrane around them presents the usual appearance of small honeycomb cells. In a dysenteric case which has lasted two or three days, they are still more obvious, and are surrounded with a minute vascular ring; they then become prominent and hard to the touch, being equally numerous in the sigmoid flexure as in the cæcum, upon which account he is disposed to regard them as the *excreting organs of the colon*. According to his own ideas he has clearly established by dissections that they are the *seeds and centres* of ulceration in tropical dysentery. He admits that other writers on dysentery have noticed these glands in their morbid

condition, but they appeared to have considered their existence to be merely of an incidental nature, and have not pronounced with sufficient accuracy and distinctness their immediate connexion with dysenteric ulceration. Murray describes them very accurately, but calls them vesicles and pustules. Dr. Chisolm describes them as minute abscesses and small steatomatous excrescences. Their appearance is not confined, however, to tropical dysentery, for Dr. Cheyne, in his learned and valuable Report of Epidemic Dysentery in Ireland, distinctly alludes to them when reviewing the pathological nature of this disease, and asserts that they are not ulcers, but minute pustules formed out of the enlarged ducts of the mucous glands found especially in the rectum and lower colon. Dr. Bailie describes them as excrescences resembling warts.

Dr. Parkes's next position is, that inflammation and ulceration of these glands constitute the *earliest* morbid change in tropical dysentery, and that the process from the small ulcerated gland to the irregular spreading ulcer, may be traced in every stage. He connects the variety of appearances which the glands exhibit in progressing towards the stage of ulceration, with the corresponding symptoms, and denies the correctness of the analogy which Drs. Ballingal and Murray have drawn between their state of intumescence, or first morbid change previous to ulceration, and the state of variolous eruption. He describes the process of ulceration as commencing in three different ways, viz., in the glands themselves, around the glands, and thirdly, by effusion of fluid beneath the intermediate mucous membrane. After giving at some length the appearances peculiar to each, he then enters on the consideration of simple dysentery, unattended by sloughing, and divides it into four periods, or stages, viz.:

1st. *Enlargement and commencing ulceration of solitary glands.*

2nd. *Complete and spreading ulceration.*

3rd. *Cicatrization.*

4. *Abortive cicatrization*, commonly called chronic dysentery, a disease which is a resultant of continued subacute inflammation and ulceration, combined with ineffectual efforts to produce the usual cicatrizing process. The details of the four periods are subsequently illustrated by dissections, but he premises a sort of general recapitulation, for the purpose, as it were, of rendering more clear and intelligible the application of his peculiar doctrines to the different positions which he advances. He enters fully into the second period, describing with much minuteness and apparent accuracy the several fea-

tures and forms of the ulcers, and points out the symptoms of their progressive course, in connexion with their special localizations.

The ulceration, after lasting for a few days, is invariably attended by the effusion of lymph or fibrine, either upon the ulcers or between the coats of the intestine. Hence, he says, results the irregular thickening in the coats of the intestine, and subsequent contractions. In severer cases, however, the surrounding mucous membrane is engaged, implicating perhaps, the muscular and peritoneal coats. When the cæcum is the part engaged, the tenesmus is often absent or slight, but there is much pain on pressure, and perceptible fulness in its locality. If the inflammation should run high, ulceration of the ileo-colic valve, with intus-susceptio and strangulation of some parts of the ileum in the cæcum may ensue. When the ulceration is solely or principally in the rectum, there is intense tenesmus, with dark bloody stools, and, in some aggravated cases, the mucous membrane sloughs, and protudes from the anus.

The position which Dr. Parkes holds, that there are no true dysenteric symptoms without the presence of ulceration, is not reconcilable with our own notions of the pathology of dysentery, nor is it borne out by the authority of modern writers of eminence on the subject. There is a difficulty in conceiving that ulceration could occur so very rapidly, and perhaps a greater difficulty presents itself in the idea that the ulcers thus formed could so rapidly enter into a state of reparation, as must follow, consistently with his declared view, in those instances where all the symptoms of the affection suddenly disappear. Eleven cases of dissections are given in detail for the purpose of establishing the early existence of ulcerations. Some proved rapidly fatal, and others sunk during the first days of the illness from the supervention of cholera, *coup de soleil*, hepatitis, or malignant fever.

Our author in the positive assertion of his position addresses himself to those who disbelieve in the existence of ulceration as the essential morbid change in the first manifestation of the attack, and somewhat triumphantly asks: "What notion have they of the condition of the mucous membrane, in acute dysentery?" To which we may safely reply, that several conditions may be conceived which would sufficiently account for the symptoms, without necessarily presupposing that of ulceration. It may be in a state of irritability, exaltation of action, congestion, hypertrophy, &c., with or without co-existing inflammation. Some such conditions, with their varieties, are present in several diseases of the rectum, and

in those forms of hemorrhoidal affections which so critically and closely simulate dysentery. Still further, we may be permitted to add, that in those cases where ulceration of the rectum does supervene, we have to deal with, not only a complication of an aggravated nature, but one which from its pathological character is very *stubborn*, and also remarkably *slow* in returning to a healthy condition.

For ourselves we are disposed to believe that ulceration does set in at an earlier period of dysentery than is more generally admitted, and we so far agree with the author as to the fact that the glands of the colon are essentially concerned on the first approach of the disease. Perhaps their morbid condition is closely allied to, if not identical with those superficial appearances on the glands of the tongue, commonly called aphthous ulcers, which suddenly present themselves, and as suddenly disappear again, oftentimes under the operation of atmospheric changes. Should it happen from any cause that their duration were longer, and their course progressive, the deeper layers of the mucous membrane would then become involved and present the ordinary and steady characters of ulceration. We are, however, positive in the assertion that the morbid state of the glands of the colon in dysentery is not such as inflammation simply will account for; neither will their special anatomical structure (if any there be) in anywise remove the difficulty. The subject will still rest in obscurity, and any explanation we can venture on must be purely conjectural, until we become better acquainted with the nature and essence of the diseased action, and the laws which regulate its influence over the secreting organs specially and the animal tissues in general.

Under the head of his third position or statement he considers the stage of cicatrization, and lays down that dysentery, when it does not prove fatal, either becomes chronic or the ulcers heal,—a process which, he remarks, has the peculiarity of taking place with so much readiness, that an ulcer which to-day is extending itself, and pouring out blood, on to-morrow will be completely cured. This, no doubt, is a peculiarity, and one of a very striking character, but which we are by no means ready to give our assent to, save alone in that limited sense, and in strict accordance with those pathological ideas, which we have just referred to. He cites one case, and alludes to another somewhat similar, from which he concludes that the sudden cessation of the symptoms does not prove that no ulcers exist, but merely, that the healing process has commenced. If the latter part of the conclusion be generally applied, must it not follow that we are to look to other causes independent of ulce-

ration to account for the symptoms of dysentery? In his description of the mode of cicatrization, he makes objections to the term "granulation" as incorrect. He says that the process is peculiar, and as far as his knowledge goes, has not hitherto been properly described. But we cannot help observing that this objection on his part carries very little of importance with it, and is one rather of name than of substance, for we must presume that Mr. Annesley and others, who have examined fatal cases of dysentery, must have been well aware that organizable lymph, either in the form of layers or tubercles, is the essential agent of reproduction in ulcerations of the mucous membrane; and every educated physician is also well acquainted with the fact, that the ulcers differ in appearance from those which are situated on the surface of the body, whether the anatomical structure of the parts engaged or simply the impression of external air more particularly contribute to create that difference.

He next enters on his fourth statement, which comprises what he terms that of "abortive cicatrization," a condition which, he asserts, is not, as stated by some, merely that of unhealed ulcerations, but a resultant from them, there being a misdirection in the usual process of cure, thus constituting what is denominated "chronic dysentery." We do not fully agree in his pathological analysis of this stage, for we are more inclined to consider the non-healing of the ulcers rather in itself as the resultant of the existing subacute inflammation, which directed the exudation of lymph to parts beyond the seat of the ulcerative process. This view will be sustainable, whether we consider the lymph itself the immediate and absolute product of this mitigated degree of vascular excitement, or adopt the notion of the late Dr. Macartney, that it is a conservative agent in its strictest sense, not only in its office of reparation, but also as essentially engaged in limiting the bounds of inflammatory action, and checking its disposition to run into a more acute stage. The lymph in the first instance merely has the effect of rendering the parts engaged thicker, but after some time it becomes converted into a fibro-cellular-like tissue, which is endued with a contractile property, and produces a diminution in the natural area of the intestinal tube in parts not previously affected with ulceration. It was a misconception on this point, perhaps, which induced our author to remark that "all traces of the cicatrices had disappeared."

After illustrating the several periods of the disease, and adding evidence in support of his statements in a series of dissections (twenty-nine in number), he gives in a tabular view

the chief changes in the other abdominal organs, which table is constructed from twenty-five dissections made by himself of patients belonging to an European garrison, who were treated by different medical officers. The cases selected were solely those of acute dysentery complicating itself with a rapid development of hepatic abscess.

Having added to these cases, thirty-nine others, occurring during one quarter in the King's Own Regiment, at Secunderabad, which were published by Dr. Innes of Her Majesty's 84th Regiment, then in charge of the corps, it resulted that about 21 per cent. of hepatic abscess were found in patients dying in the acute stage of dysentery; and even where no suppuration was found in the liver, still that organ presented appearances varying more or less from its normal state. The bile was altered both in colour and consistence; it was brownish-red or dark-green, sometimes thin, and at others viscid and stringy. Changes in the spleen, pancreas, and kidneys were very rarely met with, and these almost inappreciable, some probably of a date antecedent to the attack. The gastro-enteric membrane was found generally in a healthy state, the ileo-colic valve seemingly limiting the extension of the diseased action. He observes, however, that gastro-enteritis at certain periods does form a complication, and one, too, which is attended with great exhaustion, in consequence of the obstinate vomiting which accompanies it.

In his description of the symptoms he is rather brief, as that branch of the subject has been fully detailed by so many other writers. He agrees with Mr. Bamfield and Dr. James Johnson, that scybala are seldom present in true dysentery. Its commencement may be gradual or sudden, but is generally attended with diarrhœa. The stools soon become frequent, exhibiting the usual slimy character, and mixed with streaks of blood or a dark watery fluid. Sometimes pure blood or clots are observable. After this, the stools become occasionally watery, muddy, sanious, resembling washings of meat, or gelatinous, also lymphic and shreddy, with a very offensive odour. In the next progressive change they present an appearance somewhat like pus, which is at times mixed with mucus and blood, so as to exhibit various colours. He makes an arrangement of their different varieties in relation to the stages of the disease, and draws a minute distinction between the appearances of the stools in simple, acute, and in hepatic dysentery, tracing the connexion between the changes they present, and the coexistent morbid lesion.

He enters into the symptoms and diagnosis of complicated dysentery somewhat in detail, which may seem necessary, both

from its more serious nature, as also from the circumstance of its eliciting much interesting matter of discussion. He considers the fatality of dysentery as chiefly owing to its complications, the more frequent of which are *suppurative hepatitis*, *remittent fever*, and *scoury*. In the first complication the hepatitis may precede or succeed the dysentery; there is, however, some difference of opinion among distinguished writers, as regards the precise relation which the two affections bear to each other. In reference to the *primary* suppurative abscess, he remarks, that no satisfactory explanation has yet been given of the way in which the dysentery is produced. He advances some plausible reasons against the opinions of Annesley and others, who assert that it arises from a deranged state of the secretions; and he adopts the idea that the *absence of all secretion* is the more probable cause, which condition, if it were sufficient to account for the symptoms of dysentery, would go far towards weakening his own favourite doctrine, in regard to the exclusive pathological character of the disease. As to the relative priority of dysentery and hepatitis, a difficulty oftentimes arises in the means of drawing a distinction, in proof of which he gives the history and the post mortem examination of a case, and adds some very ingenious observations. When the suppurative hepatitis is *secondary*, the primary disease may be apparently cured before the accession of the hepatic symptoms; also it may prevail with them occasionally or throughout the whole course of the illness. He makes two varieties of this form, one where the hepatic symptoms are marked and prominent, the other, where they are slight and so obscure as to be often overlooked. He subjoins dissections of cases illustrating the symptoms generally, and lays particular stress on those which serve to point out the latent variety.

In his observations on *secondary* hepatic abscess, he combats the opinions of those writers who respectively assign as its cause, the absorption of pus, phlebitis, inflammation extending to the duodenum, an excessive secretion of vitiated bile, &c., and rather inclines to the view taken by Dr. Copeland, that it is caused by the sudden cessation of the dysenteric affection, which, being dependent upon the excretion of morbid matters from the circulation and economy in general, cannot be suddenly suppressed without inducing congestion or enlargement of the excreting organs. But his own view is of a more special nature than this, for he refers it essentially to the non-action of the colon, the ordinary excretions of which being suspended, a chemical alteration is produced in the blood. In support of this explanation he refers to the intimate alliance between the colon and liver, and the influence which colonic dyspepsia, as

it is termed by Dr. Todd, has in exciting hepatic derangement. If the hepatic affection should quickly supervene on the suppression of the excretions of the colon, it would, to our minds, convey the idea of a simple case of metastasis, or translation of morbid action from one viscus to another, an occurrence which we would be disposed to take as an ultimate fact, the vague term of *congestion*, or the assumption of a *chemical change in the blood*, being alike incapable of accounting for such phenomena.

The next complication, that of *scorbutic dysentery*, we are informed, is one little less important than that of dysentery and hepatitis. It presents the peculiarity of not being limited by the ileo-colic valve, as the disease extends to the ileum, which is sometimes more affected than the large intestine; it has also the peculiarity of the ulcerative process not being circumscribed by effused lymph,—hence, perforations are of common occurrence, and, what may be inferred from the precise nature of the complication, the intermediate mucous membrane exhibits a dark vascular hue, often effusing blood without a breach of surface. When the dysenteric symptoms are severe, it is most unmanageable,—the mouth is readily affected with mercury, but no beneficial effects follow. Astringents are hurtful, ipecacuanha useless, and even combinations with opium perfectly inert. He deems all varieties of treatment unsatisfactory, but has noticed most benefit to follow the cautious application of leeches, small doses of blue pill, with warm baths and opiate enemata to allay the tenesmus. He speaks favourably of nitric acid, farinaceous and vegetable diet, with lemonade, which remedial means, we presume, are indicated when the attack has lost much of its acute complexion, and the scorbutic taint is more prominently manifested. He has much reliance on a combination of creosote and opium, after the acute attack passes off, and he administers it freely during the stage of convalescence, unless contra-indicated by the presence of diarrhœa.

The complication of *dysentery with remittent and intermittent fevers*, as may readily be understood, is connected with, and dependent on, local circumstances, and, therefore, in certain localities, may prevail to a large extent. He gives five varieties of this complication:

“1.—Regular ague with dysentery, the ague being generally of the quotidian or tertian type.

“2.—Irregular ague (that is ague with short, irregular intervals) with dysentery.

“3.—Either of these forms with asthenic dysentery.

“4.—Common bilious remittent fever with diarrhœa or dysentery.

“5.—Malignant remittent with diarrhœa or dysentery.”

He does not enter into the treatment of the third variety, as it is more nearly allied to remittent fever than to dysentery, and he admits that he has not himself witnessed the last in the list, but includes it in order to complete the series. He considers the fourth, if the dysenteric symptoms should be at all severe, as almost incurable. He gives a joint description of the two first varieties: the fits of ague occur with perfect regularity, apparently unaffected by the attendant disease; and the dysentery is so far modified as rarely to present the acute form, a circumstance which points out an obvious indication as regards the line of treatment. The difficulty in managing the fourth variety he states to arise from the complex nature of the causes creating a greater tendency towards morbid action, the special fever operating very injuriously on the liver and spleen, in addition to the direct influence which the dysentery exercises over the liver itself. The dysenteric symptoms, therefore, claim the more particular attention; they are to be kept in check by the ordinary means, particularly opium by the mouth and in enemata, following up as quickly as possible by the exhibition of quinine and astringents in case of diarrhoea. The adynamic nature of this complication, he thinks, calls for the early application of astringent and tonic medicines.

Causes of Dysentery.—These he divides into local and systemic: under the former are comprised acrid ingesta of various kinds; under the latter he ranges diseased secretion, epidemic agents, and changes in the blood from several and various causes. In respect to the epidemic causes, though commonly acknowledged, we neither know what they are nor how they act. The principle of contagion does not appear to apply to dysentery; but when it assumes an asthenic character, and, as in crowded towns, gaols, hospitals, or in its assaults on fleets and armies in time of war, is accompanied with low fever, it is then generally admitted to be possessed of contagious properties. It may be asked, he says, whether it be the fever that is infectious; if so, why is dysentery always the result? It is questionable, he adds, whether contagious dysentery is ever seen separated from the accompanying fever; and, he continues, “Are not the two diseases propagated together?” “Are there instances known in which pure, uncomplicated dysentery, sthenic or asthenic, has been derived from a case compounded of dysentery and typhus?” But perhaps the most important question is to account for the frequency of dysenteric diseases in hot climates, especially in India; and, it is his opinion, after giving the utmost latitude to every supposition having reference to different articles of food, habits of life, endemic influ-

ences, &c., that "there is still to be explained the unusual proneness of the mucous membrane of the large intestine to be acted on."

The Pathology of Dysentery.—From what may be collected in the preceding chapters, we were disposed to consider the pathology as strictly defined, and quite fixed in our author's comprehension. But the morbid state of the cæcal and colonic solitary glands are viewed by him merely in the light of the *anatomical signs*. He gives to the term *pathology* the very extensive application of comprising "all the causes which produce its anatomical marks, the course which the various changes follow, and all the phenomena they exhibit;" thus implying nothing more or less than the idea of a complete summary of all that is or can be known on the subject; and, as the day of such enlightenment has not yet arrived, we have the author's apology in the shape of an *argumentum ad ignorantiam*, by the strange admission, that "it is at once apparent how much remains to be determined before this comprehensive pathology can be made out."

Treatment.—There are about eighteen chapters taken up with this branch of the subject, including some unnecessary digressions, and a great deal in the way of recapitulation. He enumerates six of the most common forms of the disease, as it presents itself in India among the European and native soldiers. They have been noticed in the foregoing parts of the review, with the exception of "general colonitis," which he defines as a diffuse redness of the mucous membrane, with enlargement of the solitary glands, but having much less of ulceration and smaller ulcers than any of the other forms. This is that rare form of dysentery to which he makes allusion in the opening part of his work, as an exception to his general position in regard to the early existence of ulceration. For the purpose of conveying an outline of his mode of practice, he cites a case on its first entrance into hospital, and follows it through its usual course and stages. We could not collect from it any material difference from the plan of treatment which was adopted in this country during the prevalence of the epidemic. The indications are essentially the same, and there is not even a variety discoverable in any of the remedial means save what each peculiarity would naturally suggest. We therefore find the usual classification of remedies, such as depletion in the early stage in proportion to the intensity of the accompanying inflammatory action, oleaginous purgatives, opiates, mercury variously combined, and those common accessory means which existing symptoms may call for. As to the propriety of salivation by the exhibition of

calomel, which some writers of eminence have recommended, he admits its occasional good effects; but he claims for himself some share of authority on this point, from the fact of his having had unusually favourable opportunities of witnessing that plan of treatment on a large scale; and the results which he arrives at would seem to go far in weakening its reputation. In some cases, salivation affords no relief, in others it cannot be established, and in those cases where it sets in profusely, the constitution is seriously injured. In the adynamic and scorbutic varieties calomel is strictly contra-indicated, and ptyalism always productive of much mischief. In the supposed existence of hepatic abscess, mercury is altogether inadmissible. He holds that the real indication for that remedy is the effusion of lymph; consequently, in chronic dysentery, and in the after stages of the very acute form, ptyalism slowly produced, and to the extent of making a gentle impression on the mouth, is found to be of particular value. He disapproves of Mr. Annesley's practice of giving small doses of calomel once or twice daily; it has sometimes brought on profuse salivation, which Mr. Annesley professes to avoid. He considers ipecacuanha, with occasional large doses of compound powder of jalap, as recommended by Mr. Twining, a very unsatisfactory mode of practice. The nitric and nitro-muriatic acids proved very useful to natives, and occasionally among Europeans, particularly in colonitis, and where the evacuations were slimy and fatty without much blood. Small doses of tartar emetic were administered with much advantage in the commencement of pyrexial cases. His second indication has reference to the consideration of the ulcers, as they co-exist with, or essentially constitute the subacute and chronic stages of the complaint. Those several remedial means, constitutional and local, which arrest morbid action and assist the healing process, are brought into requisition; they comprehend local depletion, mercury in alterative doses, tonics, and astringents variously modified, counter-irritation over the abdomen, frictions of mercurial ointment with iodine, nitrate of silver, and alum, both by the mouth and in injection. At the same time the usual and ordinary means which serve to restore the natural functions, and give energy to the bodily frame, such as moderate exercise, change of air, mild nutritious diet, &c., should be steadily held in view for immediate or prospective application, as the circumstances of each individual case may require.

Hepatitis.—In his preliminary remarks to this, the second division of the work, he lays down in positive terms, that gastric and duodenal dyspepsia, complicated with hepatic conges-

tion and its attendant train of phenomena, is a common disease in the tropics, especially among new comers; and, doubtless, sometimes acute hepatitis may follow, but in by far the greater number of cases, when hepatitis is *primary* it is *latent*, and when *secondary* it follows gastric and duodenal disease, dysentery, and remittent fever. From 176 cases returned as hepatitis in the 84th Regiment, during a two years' residence in India, he selects forty-two which were well marked, and arranges them in a tabular form, specifying the name, age, period of tropical service, previous state of bowels, pain in the side, &c., &c. Under the head of "antecedent disease to which the hepatic affection was traceable," we find, with a few exceptions of dysenteric symptoms, that it had its commencement in duodenal dyspepsia.

This species of dyspepsia, if we rightly interpret our author's rather general definition, is one of an acute and aggravated nature, apparently connected with or resulting from some extent of inflammation engaging the duodenum and gall bladder. He enumerates five varieties of hepatitis which he met with in India, and gives a joint description of the two first, viz., that preceding gastro-duodenitis, and that with dysentery. He then describes a third variety which he styles "hepatitis nearly latent till it has terminated in abscess." The diagnosis of the latter he considers very difficult or almost impossible in the early stages; and makes some very intelligent observations on the symptoms, as regards their precise diagnostic importance. He deems pain in the side, by itself, of no value in diagnosing abscess, and observes similarly in reference to the sympathetic pain in the shoulder, which is absent in the majority of cases, and when present is merely an aching or sense of uneasiness of short duration. Even rigors, which are so much relied upon by writers of eminence, he found to be often absent, and he has observed them accompanied with pain where no abscess was present, as proved by the speedy recovery of the patient. He allows, however, that they sometimes do occur, and in succession, so as to resemble a fit of ague, and that pain in the side and shoulder, with rigors and dysenteric symptoms, are collectively valuable diagnostic indications. He has noticed cough and dyspnoea to be absent in cases where the abscess formed gradually, though it had pressed upon the lungs. He places much reliance on percussion and manipulation, but does not believe in the existence of purulent deposits in the urine; and as to purulent deposits in the stools, he observed them so commonly as to convey little of special value; they are frequently seen among the natives of India. Hiccough, vomiting, pyrosis, and flatulence, he looks

upon in the light of accessory symptoms of a doubtful nature. The dry white tongue, with an enlargement of its papillæ, so much dwelt upon by Annesley, he has on several occasions taken notice of; but he has also noticed the tongue at times to be perfectly clean; in many cases he could not discover the tension of the right rectus muscle. When the abscess is large the position of the patient *in decubitus* is very remarkable. He gives little credence to those cases where the abscess is supposed to pass off with the urine, and dwells on the density of the cyst which encloses the pus, with the fact of the turbidity of the urine—which is by no means a constant symptom, being dissipated by the action of heat and nitric acid,—as counteracting evidence. He insists that the urine in general is pale and copious, not coagulable by heat or nitric acid, and that the proportion of urea is considerably diminished, a symptom which he thinks not alone valuable, but deserving of the deepest consideration. The night perspirations and clammy condition of the skin, taken in connexion with the dysenteric symptoms, are of much importance as accessory signs, but they may exist without abscess, and he has known abscess to occur with a constantly dry and harsh state of skin. After subjoining cases in illustration of his statements, he proceeds to detail the appearances of hepatitis and hepatic abscess. The anatomical appearances of hepatitis unattended by suppuration he holds to be still involved in much obscurity, but he does not explain in what the obscurity principally consists; the appearances which he details differ very little from those which we have occasionally witnessed in private and hospital practice, and they also seem to correspond with what we find in the most approved of standard works, viz.: enlargement of the hepatic veins, congestion, softening, depositions into the cellular tissue, and a change of colour to a lighter tinge, with a development of granular-like structure, the more especially if the case be chronic and protracted.

Hepatic Abscess.—Of this he makes four divisions, viz., 1st. Spongiform or burrowing abscess, partly circumscribed by effused lymph. 2nd. Encysted, the cyst being thin, without deposition of lymph on its internal surface. 3rd. Abscesses with lymph boundaries of variable thickness and density. 4th. Clean excavations in the hepatic substance, without cyst or lymph. A division into the ordinary terms of encysted and nonencysted would appear to essentially comprise the four varieties. He makes mention of a peculiarity which he always observed, viz.: that when abscesses advance to the surface there is often little or no effusion of lymph or adherence to surround-

ing parts, and often a considerable bulging from the distention of a very thin and soft lymph cyst. These conditions in all probability apply chiefly to the abscesses of the second and fourth divisions.

Causes of Hepatitis.—Some of the ablest writers on the hepatitis of India have admitted that the intense heat of the climate exercises a direct or indirect influence in its production. Many speculative notions have from time to time been afloat in reference to its exact amount, and some very ingenious explanations have been started as to its *modus operandi* on the animal functions and the secreting organs. The steps and stages of the morbid actions thence ensuing have also been drawn out in a kind of systematic order. Dr. Parkes, however, by no means attaches essential weight to such an agent, and would almost appear to deny its operation *in toto*. Speaking of that form which he styles, gastro-duodenal hepatitis, he says: "Its causes are evident from a consideration of the habits of most soldiers in India, and of the food which is generally used by them, no specific difference of climate, no external temperature or electrical atmospheric conditions, need be assumed as predisposing causes."

He questions the truth of Dr. James Johnson's positive statement that "genuine or idiopathic hepatitis is ten times more numerous on the coast of Coromandel than on the plains of Bengal," and the equally positive statement of Mr. Annesley that "the influence of the direct rays of the sun, and a high range of temperature, in producing derangement of the liver, cannot be disputed." In accordance with our author's views, much of the disasters which befall our Indian army is traceable to the conduct of the native cooks; and should it come to pass that he is fully borne out by facts, a total abstinence from hot curries is all that will be required towards insuring a long life, and banishing from the minds of British soldiers those sad and sinking apprehensions which the bare announcement of "orders for India" is so capable of awakening.

Treatment of Hepatitis.—He considers this part of his subject in a double point of view, or rather makes two divisions of it, in the terms of duodenal hepatitis and primary abscess of the liver. In respect to the former, he states that, when a patient comes under treatment, the disease is of some standing, and is usually complicated and obstinate. He gives a sketch of his treatment of gastro-duodenal dyspepsia, which is sometimes in itself intractable, but states that he has experienced good results from the use of means, which, though at first sight contradictory, viz., leeches, small blisters with mild purgatives

and tonics, are nevertheless perfectly reconcileable with the indication that calls for the restoration of tone to the part engaged, and at the same time the reduction of hyperæmia. He entertains a favourable opinion of the tincture of sesquichloride of iron, as a tonic medicine, and insists on the necessity of strict attention to the mode of diet, which must be light and simple without the addition of spices, but not too farinaceous: he made trials of the bread and milk diet, which succeeds so well in the inflammatory species of dyspepsia, but had been obliged to recur to the use of animal food in small quantities. When the hepatitis—which, he maintains, is subsequent to the dyspeptic symptoms,—is recognizable, the usual method of treatment, comprising depletion, abstinence, purgatives, and mercury must be immediately adopted, varying their administration as the rapidity of its accession, and its consequent acuteness of character, will demand. He speaks in a sense of apparent uncertainty on the use of mercury by his acknowledgment of its bad effects in splenic cachexia and hepatic suppuration, but still does not agree with Mr. Annesley, that “keeping up the mercurial excitement of the system by exhibiting calomel in small doses is to keep up a slow inflammatory action in the secreting substance of the liver that may itself terminate in abscess,” for in his opinion, the only chance of removing lymph by mercury is by keeping up its action for some time. He names iodine as next in the order of importance to mercury, and speaks highly of the powerful influence of biniodide of mercury in promoting absorption.

The treatment of the primary abscess of the liver he pronounces as involved both in doubt and in difficulty on account of its latent nature, and the very insidious course it pursues. He alludes to Mr. Annesley's and Mr. Martin's strong opinions as to the efficacy of copious blood-letting (a practice which, we presume, is admissible in the early stage only, and previous to the occurrence of suppuration), and adds that he never diagnosed a successful case of such, that is to say, the few cases he had seen were all fatal. On the question of employing depletion, notwithstanding the existence of suppuration, as proved by fixed local pain, hectic fever, and emaciation, the prudence and propriety of such a course rest alone on the opinion that absorption and cicatrization have in some instances taken place. He combats that opinion, as we think, successfully, and denies that the radiated fibrous deposit on the surface of the liver, which is so much relied on, is by any means evidence of the previous existence of an abscess. In his observations on the instances wherein mercury acts injuriously he dissents altogether

from the doctrine of Mr. Annesley, "that mercurial action is incompatible with hepatic suppuration," and gives extracts from Mr. Annesley's own writings where he expresses the terms "painful or red gums," and "mouth severely affected," as conclusive evidence to the contrary.

After some cursory remarks on the relatively favourable issue of abscesses in accordance with the direction and course they take in the act of bursting, he closes his remedial plans by a short dissertation on the exploratory needle, the application of which, as far as we can gather from the arguments cited, would appear very doubtful as to useful practical purposes.

But Mr. Parkes does not seem to have considered a very important objection to the operation, and one which especially interferes with its successful issue. This is the more remarkable, for in page 225 he distinctly notices a peculiarity which has always been observed in abscesses of the liver, namely, that when they advance to the surface there is often little or no effusion of lymph, or adhesion to surrounding parts. Now this peculiarity affords a natural and obvious explanation, not only for the failure attendant on openings into hepatic abscesses, but also for the fatal consequences which often so suddenly supervene. It was the deep consideration of such results that suggested to the reflecting mind of our distinguished countryman, Dr. Graves, a mode of operation which has *proved* eminently efficacious. It consists in making an extensive incision over the centre of the tumour in the right hypochondrium, and carrying it down, through the muscles and other abdominal parietes, to within a few lines of the peritonæum, and keeping the wound open with plugs of lint and poultices. The matter would appear to be thus invited to the surface by the removal of pressure, or rather by the removal of resisting structures, while the adhesive inflammation which is set up between the serous surfaces of the liver and the abdominal parietes affords a protection against extravasation into the peritoneal cavity. The particulars of this operation are given in the fourth volume of the Dublin Hospital Reports, which, perhaps (as it is a scarce publication), may not have reached Dr. Parkes' eye; but the triumphant success of the operation in other instances is alluded to, and dwelt upon at much length, by Dr. Stokes, in his very able and admirable paper on Hepatitis, in the *Cyclopædia of Medicine*.

We would also draw Mr. Parkes' attention to the important observations of Mr. Hutton, and those of Dr. Corrigan, on the sudden vicarious secretions in cases of hepatic abscess, which simulate the rupture of the sac. There is a great probability that many cases of supposed evacuation, by rupture,

through the lungs, are of this nature.—See the Transactions of the Pathological Society of Dublin, 1844 and 1845.

In our review of Dr. Budd's *Researches on Diseases of the Liver*, we shewed that the author had omitted the consideration of some important additions to hepatic pathology, which we owe to the school of Dublin, and we feel convinced that in the future editions of both Dr. Budd's and Mr. Parkes' excellent books these points will be attended to.

The Pathology of Hepatitis constitutes the next division and the final section of his work. His definition of the term is almost a re-echo of his comprehensive definition of the pathology of dysentery, and exactly the same acknowledgment, on his part, of a blissful state of ignorance. He refers cursorily to some points in the symptoms and morbid anatomy, as then opportunely deserving of description, and commences with the consideration of jaundice, which, as proved by experience, is an unusual accompaniment to Indian hepatitis. Having endeavoured to account for its occurrence on different suppositions, he then takes up the interesting question as to the infrequency of hepatic abscess among the dark natives of India, compared with Europeans resident in the same parts, and quits this branch of the subject without imparting anything instructive or but little tending towards the enlightenment of his readers. He touches on the incipient formation of hepatic abscess, inclining to the idea that it has its commencement in the suppuration of single lobules resembling small abscesses or points of pus, which increase in size by the pressure they exert on the adjoining tissue. Having alluded generally to the enlargement sometimes observable in the lymphatic glands in the proximity of the gall ducts, and the inexplicable connexion between splenic and hepatic diseases, he concludes by a statement of facts and a series of observations on the secretion of the kidneys and liver,—pointing to an intimacy of relation, which he conceives will, at some future day, be capable of conveying a knowledge of the condition of the latter organ, and also throwing considerable light on the pathology of hepatitis. In the instances of extensive suppurative abscesses, he has observed a remarkable diminution in the quantity of urea, there being a coexistent arrest of the secretion of bile, as indicated by clay-coloured stools; the absence of jaundice, and the empty state of the gall bladder after death. In a form of chronic dysentery, which he terms *universal*, the stools being yellow and liquid, without bile or jaundice, the urea is also much diminished, and abscesses often supervene. In duodenal hepatitis with high-coloured urine, but no jaundice, the urine is in normal proportion, while in

acute gastro-duodenal dyspepsia, with dark, orange-coloured stools, it is apparently in excess, and in duodenitis with jaundice, where bile is largely secreted, the urine is deeply impregnated with urates, urea, and the colouring matter of bile.

We have now reached the conclusion of our review, having followed the author through the different branches of his subject, dwelling on those of apparent value or interest, and bestowing merely a transient glance at others. Judging from the tone and terms of the Introduction, our curiosity was not a little excited, and our hopes in some degree elated. We are compelled to confess, however, that the one remains yet to be gratified, and the other has by no means been realized. The author's field for observation has been wide and extensive, but by no means proportionably productive. He has explored new ground without adding much in the shape of a discovery, frequently pointing to bright lights in the distance, though shades and shadows confuse the aspect. In some instances he seems captious to a fault, and apparently carried away with a spirit of contradiction. In discussing a point he directs attention too much to the weakness of others, without adding to the strength of his own position; and he occasionally rushes to a conclusion by the mere substitution of one assertion for another.

Still with these our objections both as to matter and manner, it would be an injustice on our part to deny him a reasonable share of merit. His powers of observation would seem to be naturally good, and while he adheres strictly to matters of fact, unencumbered with doubtful physiological problems, his style of reasoning is generally close and correct. Though his speculations are oftentimes loose and unnecessarily spun out, we are still able to collect from the mass something of value in the shape of a useful hint, if not a wise suggestion. He has evidently devoted much time and thought to the study of his subject, and though the current of his ideas aims too much at originality, and manifests rather an erratic tendency, we may in a degree pardon the error, as it is one by no means of singular occurrence even among authors of very high reputation. He has given in detail some very interesting and instructive cases, and has furnished post mortem reports which must be considered as valuable contribution to pathology. His work altogether, though not laying claim to the pretensions of a complete system, has nevertheless much of the pith and marrow of the most approved systematic writings dovetailed into its substance, which, with the original matter, render it alike a supplement to and a substitute for those comprehensive and larger publications.

Liebig's Physiology, applied in the Treatment of functional Derangement, and organic Disease, with Observations upon Hahnemann's Practice. Part I. The Heart, Lungs, Stomach, Glands, Joints, Bones, &c.; with Cases shewing the advantage of modern Science over former Methods in the Treatment of Disease. By JOHN LEESON, M.R.C.S.E., &c. London, 1846.—pp. 219.

LONGINUS, in his admirable treatise, *Περὶ Ὑψους*, tells us that one of the most effectual methods of awaking the attention of a drowsy or apathetic audience is by flatly contradicting some trite and well known apophthegm or proverb, and afterwards explaining away the contradiction at our leisure. The Greek rhetorician's advice was oddly put in practice in one of the sermons of the eccentric Swift. The Dean, after reading his text in the accustomed manner, stopped suddenly, and then exclaiming, in a loud and decided tone, "*this is a lie*," at once deprived his astonished auditory of their accustomed doze, and compelled them to open both their eyes and their ears, whilst in a very able discourse he proceeded to point out the characters by whom the admonition of the inspired writer would be neglected or spurned, and who therefore practically said, "it is a lie." Better taste, if not better principle, has, however, long since banished from the pulpit, if not from the senate and the bar, all such devices, but the art of intellectual clap-trapping has by no means been lost to the world: in the quack announcements in the daily press of England and of America we find it in the highest possible state of development, and managed with a degree of ingenuity and fertility in expedients which is truly surprising. Thus we read through a poem displaying much poetic power and some graceful imagery, and it is only at the last verse or two that we find that the whole is nothing more than an advertisement of a new ointment to preserve the beauty of the skin;—a very learned announcement of "*Professor Faraday's curious Discoveries in Electro-Magnetism*," ends in the virtues of vegetable pills; and after some highly interesting information on the "*Unrolling of Manuscripts*," interspersed with most sage and moral reflections on the "fugitive nature of man and his works," &c., &c., we are compelled to throw down the paper in mingled disgust and disappointment by finding that the whole winds up with the information that T. Roberts & Co., of London, possess the only correct manuscript recipe for PARK'S LIFE PILLS, and that "none others are genuine."

These are some of the more vulgar, but, as the receipts of the Stamp Office would shew, by no means unsuccessful methods of attracting attention; the *coups de main* put in practice by quacks of a higher order are, however, but exemplifications of the same principle, and are daily becoming more common. St. John Long, Morrison, Holloway, Curtis, &c., have all got up books as the best of advertisements, and the volume before us is one of the same class, and an admirable instance of what has been called the *sophism of great names*. Every body has heard of Liebig, and every body believes he has made some very profound discoveries in medical science; though what it is that he has discovered, few pretend to say. The name of Liebig, therefore, figures conspicuously in the title-page of Mr. Leeson's book, only, like the sportsman's glittering lure, to attract unwary fools; for what the views of the school of Giessen have to do with the medical treatment advocated by Mr. Leeson, we defy any one to point out or imagine.

Our author, in the preface, informs us that his essay is the fruit of twenty-five years' practical experience and reading; that he is induced to take up the pen from observing that "there are scarcely any who have ventured to reduce the *great modern facts* to practical purposes, so as to make them generally available in the treatment of disease;" and that his belief in the improvement of the *morale* of the Profession is so implicit, that he has "great confidence in submitting his work to their consideration now."

Passing over the preliminary views, in which we find some very just but trite observations, mingled with not a few exceedingly questionable statements, we come to a chapter on "Chemical Forces," occupying more than one-third of the entire work, and which is certainly by far the best in the book. It is, however, but a very imperfect abridgment of Liebig's Treatise on Chemical Pathology, on which the author attempts, occasionally, to graft a notion, borrowed from Prout, or some other source, or to introduce an opinion of his own, but with such ill success, that the interpolation is always glaringly evident, and not unfrequently ludicrously absurd. Thus, to take the first specimens that occur to us, we have dropsy, aneurism, biliary calculi, and all malignant affections, ascribed to a superfluity of fat;—the introduction into the bladder daily of about fifty or more ounces of "pure water, or distilled water, charged with carbonic acid," is recommended for "the removal of precipitates," and for the "solution of the calculi of which they are composed;"—and in the course of half a page we are informed, first, that nearly all renal affections are the result of congenital

malformation; and immediately afterwards, that these same affections arise from gluttony and neglect of hygiene!

Mr. Leeson is certainly no chemist, even in the most loose sense of the term; nor, however he may blindly admire the doctrines of Liebig, does he seem at all capable of understanding the views of the great chemist of Giessen. It unfortunately happens that a brilliant and novel theory, or hypothesis, is still a more direct and shorter pathway to fame than the most real and important contributions to our previous knowledge; and the very persons whose utilitarianism would have ridiculed and despised Liebig's veritable contributions to chemical science, are the loudest applauders of the many crude theories and baseless hypotheses on pathology and physiology to which his works have given currency. These, however, we have no intention of discussing upon the present occasion; but we proceed to consider what are the actual additions to our knowledge—if any—which we find in the portion of Mr. Leeson's treatise devoted to practical medicine.

This division of the book opens with an array of five propositions, "containing, in a concentrated form, the principles which are intended to be advocated" in the remainder of the work. Now, without wasting our time in discussing this concentration of wisdom, we would only observe, that four out of these five fundamental propositions are decidedly false, so far as we can understand them; and the remaining one is to plain Irishmen, like ourselves, utterly unintelligible, since it asserts that "the incidental incursion of many of the inflammatory diseases will frequently develope pulmonary disease, and in every stage of human existence."—p. 75.

The first chapter or section of the practical observations is headed LARYNGEAL INFLAMMATION, and its sub-divisions are *Croup; Spasmodic Croup; Ulceration of the Larynx; Trachea* (inflammation of); *Bronchitis, acute and chronic; Vasculo-pulmonary Disease; Neuro-pulmonic Disease; Pulmonic-parenchymatous Disease; Earthy Concretions in the parenchymatous Structure*, &c. &c.; but we have no intention of dragging our readers through such a maze of ignorant self-sufficiency, confusion, and absurdity. Both the manner and the matter of the volume demand, however, that it should not be allowed to steal quietly to oblivion; the public weal requires that publications as offensively arrogant in style as they are imperfect and erroneous in matter should not be allowed to pass unscathed through the ordeal of criticism, in order that other scribes may be deterred from presumptuously troubling, with their crude compositions, those streams of knowledge, which, without such aid,

are by no means too pellucid. We fully admit that in general far more injury is done to the public by the timid apprehensions of clever men than by the presumptuous folly of the ignorant. When a man conceives that he is in possession of knowledge not shared by his fellows, it is a sacred duty which he owes to society to add his mite to the accumulated wisdom of the past, and every good principle calls upon him to publish what he knows. If when he has done so it be then found that his ideas are either not original, or not true, still, if they be put forth with a becoming modesty, it is but very rarely that even the precipitation and comparative ignorance, which such a course implies, will be visited with the critic's galling lash: the rule in this *Journal* at least shall ever be, in such cases, to prefer silence to severity, but it is different when to ignorance we have joined presumption, and to presumption calumny, as in the work before us. Mr. Leeson in many places indulges in the most severe and unjust animadversions on his professional brethren, whilst his book is evidently written for the very same purpose as those volumes of which we read so much in English and American papers, as the travelling companions of the quack medicines, the disgusting announcements of which are a disgrace to civilization. At the present crisis, therefore, when so many productions of a similar kind are daily appearing, to be silent respecting it would be to vacate altogether the critic's chair. We can, however, assure our readers that where severity is absolutely required we shall not shrink from using the lash with all the strength and skill that we can command. If the volume before us were not intended to be circulated amongst the non-professional public, as a substitute for a regular puffing advertisement, could we possibly find in a work professing to clear up the difficulties of medical practice, descriptions such as the following?

“**LARYNX.**—The larynx is the superior part or beginning of the pulmonary air-tubes, and is composed of cartilages, and lined by a mucous membrane. It is in this part that the organs of voice and sound are contained; therefore, when a cold is attended with a loss of voice, it is an indication of where the mischief is situate.”

“**TRACHEA.**—This part is a continuation of the larynx, and its diseases are so intimately connected with it, that it would be unnecessary to enter on any disquisition upon them.”

“**BRONCHI.**—The trachea divides itself into two branches upon entering each lung, and these branches are called bronchi; and when in the lungs they undergo further division and subdivision, until they terminate in small globular cells, which are called air-cells.”

These are the first anatomical details that we meet with in

the section on the lungs, and they are the most minute and accurate in the book. The following is Mr. Leeson's account of the heart:

"The heart, as a whole, is composed of muscular fibres, blood-vessels, nerves, internal membranes, valvular bodies, cellular tissues, fat, with an outer coat, consisting of a *mucous-serous* membrane (*a*), all of which are beautifully proportioned to the important duties which they have to perform in the animal structure. Its uses are, to receive nutrition from the thoracic duct and subclavian veins" [the vena cava has nothing to do with the matter], "then to pass them" [that is, of course, the veins and duct] "by the pulmonary arteries to the lungs, to receive the necessary atmospheric influences, after which they" [the veins and duct, still, no doubt] "again return by the pulmonary veins to the heart, to be sent by its means to every part of the system, for its maintenance."

So much for the descriptive anatomy of the "Divisional Surgeon of the Metropolitan Police Force." But let us turn to his pathology, and here, amongst other information which is totally new to us, we learn that a *very frequent* cause of sudden death is pleuritic effusion, when "the lungs are found to be shrivelled into almost nothing, such being the invariable consequence of this distressing disease" (p. 110), nay that life may be maintained for many years without the use of the lungs at all!—hear Mr. Leeson:

"ATROPHY OF THE LUNGS.—Atrophy, or wasting of the lungs, often arises from the absorption of the permanent air in the cell by surrounding inflammation, upon which the mucous surfaces adhere so closely that no re-admission of air within them can be effected. The lungs so *put out of use*, waste, and it not unfrequently happens that *life is carried on for many years* under such alteration of structure. Persons so affected should lead a quiet and discreet life, or, otherwise, they will suffer severely in consequence if they do not do so."—p. 110.

We are also told that aneurism of the aorta is "admitted to be a disease of old age" (p. 207); "is less frequent among men than women" (p. 213); "and that sudden death from this cause is very rare;" whilst the following are Mr. Leeson's practical observations on effusion into the pericardium: "No operation can be tried here, *at least it has never been done, nor ever tried to be done*, by the most pertinacious and confident practitioners; and before the case could be discovered it would require a refinement in medical tact which is rarely ever witnessed. Such cases are, therefore, known after death, *and not before.*"—p. 209.

(*a*) The italics are Mr. Leeson's, not our's; we are compassionately informed, in a foot note, that the pericardium is "ordinarily called a fibre-serous membrane."

Although, however, tapping the pericardium and the diagnosis of pericarditis are so infinitely difficult, in Mr. Leeson's opinion, our author assures us that the operation of tracheotomy or laryngotomy is "easily performed *in every instance*, although so much has been said by some operators upon the great difficulties and dangers which are represented as always surrounding it."—p. 94. We can only say that our experience respecting such cases has led us to form a very different estimate indeed of the dangers and difficulties of their diagnosis and treatment; but to say more on the subject, we feel would be an insult to the intelligence and experience of our readers.

Notwithstanding these peculiar notions, and many others which we have noted, but have not time to allude to, if we may believe his own statements, Mr. L.'s practice has been attended with the most brilliant and undeviating success,—white swelling, Potts' curvature, phthisis, asthma, &c., having yielded before the potent magic of his skill, and his time being very much taken up in correcting the blundering and malpractice of such men as Sir Astley Cooper and Sir Benjamin Brodie, for such we presume to be intended by "a late distinguished baronet, who was considered to be at the head of his profession," and "a titled surgeon of the Court," who are often referred to under circumstances not the most flattering to their self-esteem. Brodie and Cooper are, however, not the only ignoramuses in London;—Mr. Leeson most pathetically laments "the utter want of knowledge among the older practitioners," and is continually sneering at the deficient education and superficial professional knowledge of the juniors, who are preparing to succeed them!

Not only, however, is Mr. Leeson dissatisfied with the common herd of the medical men he sees around him; his philanthropic feelings are deeply harrowed by the reflection that "almost all those who have written upon the diseases of children, and by most of those who *had* done so upon pulmonary disease," were men totally destitute of "sound philosophical principles," and who wrote "without being troubled with a practice" (pp. 119, 120); crimes which, of course, Mr. Leeson would not be guilty of,

"For all beneath the moon."

Now, we must confess that these are the very portions of medical literature against which we conceived it almost impossible for a charge of ignorance, incapacity, and inexperience to be brought forward by any rational man. The above, however, are not mere hasty expressions, for we find the same tone of

commiseration running through the entire work; the author sometimes rebuking the ignorance of writers generally, and at others being so complacent as to "fully agree with Laennec," to adhere to his own opinion, although, says he, "I know that in this view of the matter I disagree with Professor Andral," &c. If Mr. Leeson, before he sat down to write, had but taken the trouble of perusing some *one* only of the writings of Broussais, Laennec, Louis, Andral, Stokes, Chomel, or of a host of other great men whose names mark an era in our science, and whose labours in the department of thoracic pathology will be esteemed and venerated so long as laborious and careful investigation of the phenomena of disease, sound inductive reasoning, and a truly philosophic spirit, find any admirers amongst mankind, he would certainly either not have written at all, or would have cast forth, on the waters of public opinion, something very different indeed from what now lies before us. His confidence, however, in his own abilities and acquirements, is perfectly unbounded, and, not content with reforming the *material* of medicine and surgery, he would also introduce a new nomenclature. The following is the shortest of many notable examples of criticism of this kind:

"*Scrofula*.—I do not like the word 'scrofula,' for it literally means 'a little sow or pig,' and implies a disease to which these animals are subject. Individuals of the highest and most distinguished families in this country have had this disease attributed to them, and often as one of the most delicate and at the same time one of the most malignant slanders which could be whispered against the interests of honourable and respectable families. ¶ It is a name which ought to be immediately expunged from the statute-books of medical science, and I therefore venture to omit it when speaking of what is considered to be scrofulous disease, and substitute the word *glanditis* instead, until some of the more distinguished members of my profession shall think fit to propose a term more expressive of the true pathology of the disease."—p. 115.

Mr. Leeson's book we regard as one of many practical evidences of the very injurious influence on medicine of the regulations of most of the British licensing bodies. In Ireland, no one can become either physician, surgeon, or apothecary, without giving some proof of his having received a preliminary education; but, amongst our more wealthy neighbours on the other side of the channel, with the exception of the graduates of the English Universities, who constitute a very small minority indeed of the professional public, no such ordeal has to be undergone; and the English College of Surgeons, with all its advantages of position and cir-

cumstances, continues to confer its diploma on men, many of whom do not even pretend to have received the commonest elements of a mercantile education,—a fact which was proved on oath by some of the brightest ornaments of the profession in London, on their examination before the House of Commons a few years ago. Need we wonder then that the professors of the healing art are classed in the same category with quacks and impostors, when almost every panacea, which is trumpeted forth in lying advertisements, is the offspring of some regularly qualified practitioner, and when so large a number of medical men, from the defects of their general education, make such a sorry figure in general society. In the entire of the work which suggests these remarks there is scarcely one sentence, *certainly not one page*, in which we have not detected grammatical errors and violations of the ordinary rules of composition, such as, we are confident, are but very rarely met with in the themes of boys ten years of age educated in our National Free Schools.

If Sir James Graham (of whose anxious desire to serve the medical profession no one ought to entertain a doubt) were to abandon altogether the idea of legislating on those points on which it is so difficult to reconcile conflicting interests and opinions, and to limit his efforts to the obtaining of the following two great reforms, about the utility of which there can be little or no dispute, we are convinced that he would do the country a lasting service, and hand down his name to posterity, as a real benefactor to medical science, and to the inhabitants of the British empire. The two reforms to which we allude are the requirement by all licensing bodies of an *adequate preliminary education*; and secondly, the introduction of a proper system of appointment to all public charities and places in the gift of the Government. The man who enters the medical profession without a good preliminary education, is either compelled to devote to remedying that defect, precious moments which ought to be otherwise employed, or, as is more usually the case, he endeavours to conceal his deficiencies, and finds his first false step productive of difficulty and discomfort to him all his days. The true physician, such as we often find him in great cities, where the constant collision of intellect compels him to keep pace with science, is the real philosopher *par excellence* of the present day. To the scholastic lore acquired at college, he has added chemical, anatomical, physiological, physical, and medical knowledge in no small amount; and that rare and inestimable acquaintance with human nature in all its workings, which his peculiar circum-

stances almost force him to acquire, enables him to concentrate and combine his varied treasures of mind, so as to render them practical in their bearings, and mutually dependent; whilst familiarity with danger and suffering confer on him a very high degree of courage and firmness, united to a habit of relieving suffering and distress. Do we go beyond the truth? By no means. It is to physicians, above all others, that the world is indebted for most of what has been done in botany, chemistry, physiology, &c., whilst physicians are the *only* class of men who habitually devote to the public a very large proportion of that time, which is their bread, to perform, amid misery and suffering, the most painful duties of humanity. Such is, undoubtedly, the simple truth; yet, so far as our Government is concerned, the medical man is, of all classes of society, the least honoured and the least rewarded, simply because he does not give to his talents a *political bearing*. Whilst various legal, military, and other appointments requiring abilities of the most ordinary description, have their thousands per annum, with their stars, garters, and coronets in the distance, medical men rarely receive the salaries of common clerks; and medicine is the *only* profession which has *never* had a representative in the House of Lords. For these things, however, we care but little, if what rewards are given were given, not to *patronage*, but to *science*. A petty medical appointment, worth some £40 or £50 per annum, falls vacant by death, and ere the grave has closed over the former occupant, a crowd of candidates are hunting after his post with as eager a cry as if it were a seat on the woolsack. And how is this coveted place to be obtained? Either by the immediate influence of some nobleman at court or by some political friend who has weight with the ministry for the time being, and these are to be set to work by the friends of the lucky candidate, without any reference to his real merits or abilities. Again, if the form of an election must be gone through, the candidate who is not a personal friend of the electors must get the electors spoken to by persons who have influence with them, and, after having got up by any means available a long list of testimonials, he must go round cap in hand, at much expense, and always at the loss of much time and temper, humbly to solicit their votes. Now could any system be devised more repugnant to every feeling of a refined and generous mind, or better calculated to crush the energies of the enthusiastic and retiring man of genius, who, without either taste or opportunity for forming influential acquaintances, has come up from the obscurity of the country to push his fortune

in a great city, trusting to his abilities and learning alone as his titles to distinction and preferment?

It is quite evident that neither interest nor money, the chief modes of advancement at present known in these kingdoms, can be any test of intellectual ability; whilst the French method of *concours*, or appointment by public and searching examination of the candidates by a medical jury, the members of which, as well as the questions which they are to put, have been chosen by lot, appears to offer to the embryo Hunters and Munroes, the Rouxs and the Velpeaus,—who, though penniless and friendless, feel that they have within them a genius to conceive and a perseverance to accomplish achievements worthy of immortality,—the greatest prospects of advancement which seem capable of being held out to them by any method of gauging the intellect that has yet been conceived. The *concours*, too, is now no untried novelty; the experience of half a century in France and other countries has *proved* it to work even better than was anticipated, and its adoption throughout the British empire would of itself in a very few years effect a wonderful improvement in the literary character of the profession. In all countries it is found that the men who actually graduate at universities are a very small proportion indeed of those who benefit by such educational institutions; vast numbers, for various reasons, dropping off before they attain the full period of study. Now the *concours* would act in a precisely similar manner. It would induce the great mass of medical students to exhibit a degree of zeal and diligence both previous to, and *after* graduation, such as is now the characteristic of but a chosen few. Examination, even if attended with failure, would be honourable rather than the reverse; it would be defeat in a great attempt, and there would be as little hesitation in alluding to such an occurrence, as we find to be the case with reference to the fellowship examinations in Trinity College, Dublin; whilst every man who cherished the remotest hope of obtaining an hospital, a professorship, or any public appointment (and who is there does not entertain some expectation or faint hope of the kind?), would not be led, as at present, to fall back into idleness as soon as he had got a degree or diploma, but *it would be his interest*, and hence his occupation, to be continually training himself for the arena of intellectual combat in which he hoped to distinguish himself, and to secure, at the same time, the means of an honourable livelihood. We should think too, that the abolition by the *concours* of all patronage to medical situations would be an actual relief to the Government.

and we can scarcely conceive that the measure would be otherwise than popular.

If we were to judge from Mr. Leeson's book only, we should say that pathology is in a very low state, indeed, in London, amongst the ordinary run of practitioners. Such a case as the following certainly *could not* occur here, but we have no doubt the whole affair has as little reality as the blundering of Cooper and Brodie, and others before referred to. We give the case, however, as we find it:—

“*Case.*—John Million was about thirty-five years of age, and up to the time of his death complained of no illness whatever. He was of large stature, and his muscular structure was well developed, and otherwise indicated rude health. When getting into bed he died instantly, and his lifeless body was found by his wife, who followed him from the parlour to the bed-room in about five minutes after he had left to rest for the night. The family were known to be quarrelsome, and particularly about money matters, and had a dispute some few hours before, when some blows were struck. It was thus suspicions were entertained of a murder having been committed. The outcry in the neighbourhood brought the police, one of whom was despatched for me, as being their medical officer. I immediately attended, and upon careful external examination pronounced it to be a case of rupture of one of the great vessels. I next made a post mortem examination, and found the case as I had anticipated. After the examination, I replaced the whole of the morbid and sound parts nearly as I found them, and then departed. The parish authorities where the accused persons lived now took up the case, and despatched their medical officers for inquiry. They accordingly re-examined the body, and could *nowhere find an ulcerated cavity or ruptured vessel, and especially in the lungs; and moreover stated that marks of violence were found upon the back part of the body.* My opinion being then known, the coroner's inquest was adjourned to allow for further examination. This investigation easily discovered a large surface of malignant ulceration, and the ruptured vessel; and the *marks of violence* were discovered to be nothing more than the first stage of decomposition, which was hastened by the extreme heat of the weather which then existed.

“The unhappy persons against whom the charge of murder was raised were accordingly acquitted.”

We have given the above extract, italics and all, exactly as it stands, and we shall only remark that if justice allow her sword to be directed as to whom it strikes by such men as seem to have been concerned in the above medico-legal investigation, the propriety of her being represented blindfolded is apparent enough; but, as we have already said, we discredit the whole affair, since the ignorance, carelessness, and blunder-

ing are too extravagant, we would fain believe, to have been exhibited by any three members of our profession under such circumstances.

In conclusion, we have only to hope that it will never again be our painful duty as journalists to hold up to public reprobation such a work as "Leeson on the Heart and Lungs." The object of the Dublin Quarterly Journal shall ever be to afford substantial and valuable information in its reviews as well as in its other departments, and to place before its readers notices or analyses of works of sterling merit and practical importance, rather than harsh, though most just, and *occasionally* necessary, criticisms on books similar to that which has just been commented on.

An Investigation into the Nature of Black Phthisis, or Ulceration induced by carbonaceous Accumulation in the Lungs of Coal Miners, and other Operatives. By ARCHIBALD MAKELLAR, M. D., Edinburgh.

THE disease termed spurious melanosis by some authors is still but imperfectly understood. The opinions entertained by pathologists on the subject may be stated to be—

I. That the black matter is a secretion from the blood originally.

II. That it is the result of carbonaceous inhalations.

III. That in cases where a certain quantity of free carbon has been inhaled, the accumulation may go on independent of the addition of any new extraneous carbon, but by affinity with the carbon of the blood.

We cannot yet declare that the true nature of the spurious melanosis is settled. Dr. Makellar is of opinion that it arises from carbonaceous inhalation in the first instance, and his essay is an important addition to our knowledge of the subject.

We shall proceed to analyse his paper, now presented in a separate state, but which originally appeared in the pages of our contemporary, the *Monthly Journal of Medical Science*. We only regret, that we have not space for a more lengthened examination of this truly valuable and original essay, which must connect Dr. Makellar's name with the progress of Thoracic Pathology.

The disease affects persons exposed to the inhalation of carbonaceous particles, and eventuates in marasmus and other symptoms, accompanied by a singular condition of the lungs. Carbonaceous matter, in a semi-solid or a fluid state, is found

in quantities which, to those who have never seen the disease, would appear incredible; and ulceration and other destructions of the pulmonary tissue are induced.

The locality in which Dr. Makellar's observations were made is that part of the coal district of the Lothians, about ten miles east of Edinburgh, which stretches from the foot of the Lammermoors towards the sea coast. The seam of coal is very thin, varying from eighteen inches to three or four feet. Great difficulty attends the mining operations, and ventilation is much neglected, a circumstance partly caused by the immunity of these mines from explosion, carburetted hydrogen not being generated in them. But Dr. Makellar shews that the formation of carbonic acid, and the smoke from the lamps, candles, and, above all, from the explosion of gunpowder, are slow but sure causes of the deterioration of the miner's health. It is found that the miner, after working beyond a given time in these pits, where he has to work lying on his side or back, surrounded by air so foul that the lamps burn dimly, and he often cannot distinguish his fellow-labourer though close at hand, is affected by a constant desire to draw a deep breath; and this is supposed by Dr. Makellar to assist in the impaction of the minute air tubes with the floating carbon of the thick and polluted atmosphere with which he is surrounded.

"It is about thirty years since miners in this district adopted the use of coarse linseed oil, instead of whale oil, to burn in their lamps; and it is very generally known that the smoke from the former is immensely greater than that from the latter, and many old miners date the greater prevalence of black spit to the introduction of the *linseed* oil. This change took place entirely on the score of economy. Any one can conceive how hurtful to the delicate tissues of the respiratory organs must be an atmosphere thickened by such a sooty exhalation."

It is found that stone mining is more injurious than the raising of coal, the symptoms of carbonaceous accumulations being produced sooner, and in a more acute form. When we consider that, in addition to the effects of the lamp and candle smoke, and the deoxygenized air, the stone miner is exposed to the smoke of gunpowder used in blasting the numerous dykes which traverse the coal district, we can understand this important fact. A few years ago, a very extensive coal level was carried through the colliery of Tranent, at which a great number of young vigorous men were employed at blasting, *every one of whom expectorated carbon, and all died before the age of thirty-five years.* So well understood is the great risk they

run, that the stone miners receive higher wages than those who merely work the coal: and, in several of the cases recorded by the author, the disease first occurred on the occasion of the sufferers changing their employment from coal to stone mining.

The disease affects a large proportion of the colliers in this district. It appears to commence with the symptoms of dry bronchitis; the patient suffering from dyspnœa, and an irritating cough, particularly at night. When expectoration is established it is mucous, sometimes bloody, and frequently black. The appetite fails, emaciation and loss of strength result, and the miner, after an ineffectual struggle, is forced to resign his work. In the advanced stage of the disease he has orthopnœa and remarkable feebleness and slowness of the action of the heart; the pulse varying from thirty-six to forty-five in the minute. He occasionally expectorates on a sudden a great quantity of a black matter of the consistency of treacle, and this is supposed to arise from the bursting of the carbonaceous cysts into the bronchial tubes. There are occasionally colliquative sweats; the surface assumes a leaden hue, dropsical effusions take place, and vertigo and syncope close the scene.

From the cases given, we may conclude that the disease runs a course of from two to five or six years. The disorganization of the lung in this disease varies from the impaction of some bronchial tubes with carbon, to an almost universal infiltration with a substance like liquid blacking. In some cases the carbon forms semi-solid matter encysted in the lung; while in others large cavities are found capable of containing a pint, and filled with the black liquid. These cavities seem to have been formed by the coalescence of many smaller ones, and death may result from their rupture into the trachea. They are traversed, as in great tubercular cavities, by bands of pulmonary structure and vessels. The pleuræ exhibit adhesions, and are frequently the seats of liquid effusion of a dark colour. The heart is found soft and flabby, and the blood generally dark and pitchy. Enlargement of the liver is common, and in one case Dr. Makellar found the carbonaceous accumulations in the hepatic structure itself. Nothing very remarkable has been observed with reference to the cerebro-spinal system or the digestive tube.

We wish that more detailed statements of the physical signs had been given. They are *essentially* those observed in cases of the heterologous deposits of the lung, and may be expressed by the same formula as the tubercular or cancerous

disease, namely, evidences of progressive solidification, more or less complete, preceded and accompanied by bronchitis. Where great cysts are formed, all the difficulties which attend on the diagnosis of some cases of cancer may occur; and these are still greater when chronic liquid effusions exist in the pleura and pericardium, as in the first case given by Dr. Makellar. Still we feel convinced that the general diagnosis of the disease has been established by Dr. Makellar, and may be thus stated:

I. The fact of the patient having been exposed to carbonaceous inhalations at some former period.

II. The existence of a cachectic state, with a feeble and slow circulation.

III. Evidences of progressive infiltration or consolidation, preceded or accompanied by signs of bronchitis, with or without the black expectoration.

It need scarcely be said, that where cavities are formed which communicate with the bronchial tubes, the usual combination of physical signs will be observed.

It would be very desirable if the following inquiries as to the physical signs of this condition were set on foot.

First.—To determine the portion of the lung in which the deposition occurs in the first instance, and particularly to ascertain if it most often is a partial or a general affection.

Secondly.—To ascertain the difference between the physical signs of the isolated or encysted masses, and that form in which a general infiltration occurs.

Thirdly.—To ascertain whether the signs of eccentric displacement from the swelling of the lung, or the accumulation in cavities, are ever observed.

Fourthly.—To determine the period at which the feebleness and slowness of the heart's action commences.

These inquiries we suggest to Dr. Makellar not in any spirit of hypercriticism,—for we repeat that he has already established the diagnosis of the affection,—but as points which we have no doubt he will soon be enabled to clear up, and we shall then have clear views of the differential diagnosis of three examples of pulmonary deposits, viz., tubercle, cancer, and carbonaceous matter. It is very important to state here, that pulmonary consumption is rare in the coal-miners with which the author is acquainted, and that it occurs principally among females. In none of Dr. Makellar's post mortem examinations did he find tubercle, although in the families of patients who have died of the carbonaceous deposit, true phthisis has occurred in persons who have never entered a coal-pit.

No case of carbonaceous deposit was observed in female colliers; a circumstance to be accounted for by the fact that, even previous to Lord Ashley's Act, women were only employed as carriers, and from their continual returning to the pit-shaft they were enabled to breathe a purer air.

To those who may be still doubtful of the actual nature of this singular affection, and who are of opinion that the cases are merely examples of melanosis, we would say, study the cases given by Dr. Makellar, and the conviction that his views are in the main correct will force itself upon you, and you must believe that the direct inhalation of carbon is the principal exciting cause of the disease. How far the respiration of an atmosphere loaded with carbonic acid may act, it is at present impossible to say; and it is likely that, in producing the cachectic condition of the miners, it may take a more or less important share,—but the lungs are found actually filled with charcoal. This is matter of demonstration, and Dr. Makellar has very properly adduced the testimony of one of the first living chemists, Dr. Graham, of London, in proof of the fact.

“Dr. Graham, of London, in his paper on this subject, recorded in the 42nd vol. of the *Edinburgh Medical and Surgical Journal*, gives the following opinion, as the result of a series of investigations, with a view of determining the nature of the disease in question. He says: ‘I have had several opportunities of substantiating the carbonaceous matter in a state of extraordinary accumulation in black lungs supplied by my medical friends. The black powder, as derived from the lungs (after an analysis) is unquestionably charcoal, and the gaseous products from heated air result from a little water and nitric acid being retained persistently by the charcoal, notwithstanding the repeated washing, but which, re-acting on the charcoal at a high temperature, come off in a state of decomposition.’ In regard to another analysis of a lung, he says: ‘The carbonaceous matter of the lung cannot therefore be supposed to be coal, altered by the different chemical processes to which it has been submitted in separating it from the animal matter. The carbonaceous matter of this lung appears rather to be lamp-black.’”

By the simple process of washing the expectorated matter, great quantities of carbon, in the state of an impalpable powder, may be obtained, as occurred in the first case.

“During the greater part of the period he was under my charge he continued to expectorate black matter, of the consistency of treacle, mixed with mucus in considerable quantity, and I would suppose, taking the average of each week, that he expectorated from ten to twelve ounces daily of thick, treacle-like matter. I had the curiosity,

during my attendance on this patient, to separate the mucus from the carbon, by the simple process of diluting the sputa with water, and thereafter separating and drying the precipitated carbon. I was enabled by this means to procure about one and a half drachms of a beautiful black powder daily, and in the course of a week I had collected near to two ounces of the substance. This process I continued for some weeks, till such time as I had procured a sufficient stock of this remarkable product of the pulmonary structure, and I am certain that the same quantity, if not more, could have been obtained till his death, in December, 1836."

In this case the inferior lobe of the right lung was so densely impacted with carbon that it sunk in water. "Both lungs," says the author, "represented in fact a mass of moist soot; and how almost any blood could be brought under the influence of the oxygen, and the vital principal be so long maintained in a state of such disorganization, is a question of difficult solution."

"It is a melancholy fact connected with mining occupations in the locality described, that few or none who engage in it escape this remarkable disease. I have never known one collier in many hundreds, who, even in his usual health, was not, as he expressed it, more or less 'touched in his breathing;' and after much experience in auscultation in such pulmonary affections, I am the more convinced that the dyspnoea from which they suffer arises from the impaction of the minute bronchial ramifications, induced during their labour below ground surrounded by an impure atmosphere. The East Lothian colliers, of all miners throughout the kingdom, are certainly most subject to this disease; and those at Pencaitland are so to a fearful extent. In the late inquiry for the Parliamentary Report, such has been manifestly brought out, and I am quite able to corroborate the conclusions at which the Commissioners have arrived. It has been supposed by many that this carbonaceous affection was caused by inhalation of coal-dust. Now, when it can be proved that there is as much coal-dust at one coal-work as at another, the question comes to be, why should colliers labouring at one coal-work be subject to the disease, while those engaged at another escape? For instance, there is as much coal-dust at Penston and Huntlaw, where there has never been black spit, as there is at Pencaitland, Preston-Hall, and Blindwells. I conclude, therefore, that this cannot be the cause, otherwise they should all be liable to the disease. Again, those who labour as coal-bankers at the mouth of the shaft are obliged to inhale much coal-dust in shovelling and arranging the coal received from the pit, and have the sputum tinged to a certain extent by it,—which resumes its natural appearance when the collier leaves the labour producing it. They are not subject to the miners' cough, nor is there carbonaceous infiltration found in the lungs of such labourers after death. The females and boys, when, as formerly, both

were allowed to labour, could not fail to inhale much of the coal-dust in which they were generally enveloped in their daily occupation; but no carbonaceous deposit has ever been found in the pulmonary tissue of either the one or the other."

Before concluding our analysis of Dr. Makellar's researches we must allude to his opinion, that when once the lungs become infected by carbon, the process of deposition may continue, even though the subject be removed from its direct inhalation. It would be presumption in us to affirm or deny this doctrine; but we cannot help saying, that the evidences which the author advances for it are not wholly conclusive. In one case (see p. 41), the patient, who had been a collier since his boyhood, had enjoyed good health till he came to work in the Preston-Hall colliery, and from this time he dated the affection, which ultimately proved fatal in 1836. He remained three years at this mine, and desisted from labour in 1832. On dissection, it is true, that the lungs presented a singular amount of carbonaceous deposit, and great disorganization; but the case, strictly speaking, only proves how long life may be preserved notwithstanding great mechanical alteration of organs; although it must be admitted that it goes to establish the probability of Dr. Makellar's opinions, in favour of which certain pathological analogies might be adduced. He has, however, established the fact, that the carbonaceous deposit may remain for many years concealed in the pulmonary structure.

We have now only to express our thanks to Dr. Makellar for the publication of these truly valuable and original researches, which are among the most important additions to our knowledge of the pathology of the lungs which have appeared for some years; nor can we conclude without the expression of a feeling of pride that in a new instance medical science has pointed out evils which philanthropy and an enlightened spirit will not fail to remove.

Introduction to Zoology, for the Use of Schools. By ROBERT PATTERSON, Vice-President of the Natural History and Philosophical Society of Belfast. PART I. Invertebrate Animals. London. 1846. 12mo. pp. 194.

THE introduction of natural history into our schools, as a branch of general education, has of late years received much of that attention to which the importance of the subject so justly entitles it.

The vast amount of time spent at our public seminaries in the acquisition of a knowledge of the Greek and Roman classics, and of the more abstract branches of mathematical science, to the almost total exclusion of the sciences of observation, has excited an interest in various quarters; the compatibility of such a practice with the genuine objects of an educational course has been freely and candidly discussed, and the belief that the present system is far from meeting the demands of the growing intellect, and altogether incapable of effecting the great purposes which the education of youth has in view, has been rapidly gaining ground, and is now so generally entertained that any further discussion on the subject in this place is entirely uncalled for.

Fully impressed, as we are, with the vast importance of the natural history sciences as an element in general education, we cannot but rejoice at the appearance of the little work whose title stands at the head of the present notice. We know, indeed, of no book which so fully comes up to our idea of "*Zoology for the Use of Schools*." Eminently popular in its style and mode of treatment of its subject, it sacrifices to this quality, so essential in a work of the kind, as little as can well be deemed possible of the more rigidly scientific. *Zoology* is a science rapidly progressive; there is scarcely a day which does not leave behind it some new and rich addition to our knowledge of animal existence; month after month some new fact from the field, some new law from the closet, is sent forth to the world in the pages of our periodicals. The natural history of the present day is absolutely and thoroughly distinct from that of a very few years ago, and this alone will explain the signal failure which, with one or two exceptions, has characterized recent attempts to bring the facts of zoology within the grasp of the popular reader. The truth is, that by far the greater number of works which, within the last few years, have appeared on this object, must be looked upon as presenting rather the zoology of twenty years ago than as conveying anything like an adequate idea of the existing state of the science, and it is in this very point of view that we think the present unpretending little volume eminently recommends itself, bringing down the subject to the present state of discovery, and making us acquainted not only with the valuable labours of British naturalists, but with those strange and intensely interesting truths which are every day developed beneath the microscope and scalpel of our continental brethren.

The whole of biological science being essentially built upon our knowledge of organic form, it is absolutely necessary that correct ideas of such form be acquired, whether this consist in

the external configuration of the various species of living beings, or in the more recondite peculiarities of structure revealed to us by careful dissections. Now this knowledge may of course be conveyed by accurate and elaborate descriptions, but such mode of arriving at truth is irksome and laborious in the extreme, and will assuredly disgust the student before he has half got through his task; hence the indispensable necessity of good figures in any work with an object similar to that of the book before us. Of this our author is well aware, and he has accordingly illustrated his pages with no sparing hand. Several of the figures are original, but the greater number are selected from the best sources, both British and continental. The truths of zoology are thus laid before the student with a vividness which could never, without such aid, be attained by the most elaborate description.

In a word, we strongly recommend Mr. Patterson's little work, and feel confident that not only the tyro but the more advanced student will derive from the study of its pages pleasure and advantage.

A Practical Manual, containing a Description of the general, chemical, and microscopical Characters of the Blood and Secretions of the human Body, as well as of their Components, including both their healthy and diseased States; with the best Methods of separating and estimating their Ingredients; also a succinct Account of the various Concretions occasionally found in the Body, and forming Calculi. By JOHN WILLIAM GRIFFITH, M. D., F. L. S. London. 1846. 12mo. pp. 168.

AMIDST the general struggle for individual advantage, we feel as if it were the refreshing influence of an oasis, when we meet with a purely disinterested writer, one who is manifestly devoid of every selfish motive. We are happy in being enabled to present such an one to our readers, in the person of the author of the very small volume whose title-page is given at the head of this notice. However bad our opinion of human nature in general may be, we are convinced of his perfect disinterestedness; for if he had sought for practice, he would have taken for his subject either the specific treatment of some popular disease, or those dietetic and hygienic maxims in which mothers feel so deep an interest; if he had endeavoured to gain popularity amongst students, he would have sent forth a *vade mecum* adapted to the profundity of examining boards; if fame had been his object, he would have, at least, aspired to some originality in observation or speculation; but, instead of that, his work is

simply a compilation. Pure, therefore, and unselfish, have been his labours; and although some ill-natured persons may think that if one has no motive for writing a book it had better be left unwritten, we disdain to canvass a doctrine so merely utilitarian. If another argument be requisite to demonstrate the disinterested nature of this book, let the reader study the title-page, and learn the extent and variety of matters concentrated in this minute work.

But, although intensely convinced of the author's lofty disregard of every personal consideration, we confess that we had a little curiosity to discover what was the object of the book, and for what class of readers it was intended. It is called "**A Practical Manual.**" Now, a manual, or hand-book, is a small book which you can carry about with you to assist in any practical inquiry; so we sought what might be the practical inquiry which this manual was intended to help; and we did discover it by the method of exclusion. And, previously to stating the grounds of our argument, we wish, in this very plagiarising age, to claim the priority of this discovery, otherwise there are those who would be willing enough to say that they were the first who found out what was the object of this book; but, after this public notice, we hope none will be so bold as to steal our hard-earned honours. Well, then, in the first place, this book was not intended for any one actually about to make a chemical analysis of the blood or secretions, because Rees and Simon give all the necessary directions for that purpose; while this little book does not afford half of them. Secondly, this work was not intended for persons who really use the microscope, because *Donné* and *Lebert* can supply their wants; while the descriptions given in this work, although very nice as far as they go, do not go far enough to be of actual assistance to the observer. We are thus, by a beautiful process of reasoning, led to see that the object of this *Practical Manual* is to supply a want very generally experienced by gentlemen who, having no intention of putting themselves to the trouble and inconvenience of making chemical and microscopical investigations, would still wish to pass, in medical society, as well-informed persons, sufficiently familiar with the rapid progress which science has lately made.

To all lecturers, therefore, who wish to sprinkle their discourses with a choice selection of French and German names,—who are desirous of astonishing the attending students by slight and skilful allusions to the astonishing discoveries of modern chemistry and microscopy,—to those members of medical debating societies who are anxious to appear brilliant, without the drudgery of deep research,—we

strongly recommend this little work, in which they will find a harvest, reaped ready to their hands, from periodical literature and massive monographs; containing, in a condensed and lucid form, the results obtained by many arduous labourers, men who, intent on painful and prolonged details, are little likely to rival those to whom we address ourselves, in the ephemeral atmosphere in which the latter move and breathe.

On the Analysis of the Blood and Urine in Health and Disease, and on the Treatment of Urinary Diseases. By G. OWEN REES, M.D., F.R.S., F.G.S. &c. &c. Second Edition, 1845.

FEW works have of late years issued from the press, possessed of more sterling value than the first edition of this work, published in 1836. Nine busy years of investigation and discovery have since intervened, and there can be no better evidence of the intrinsic excellence of the original work, than the fact that scarcely anything contained in it has had to be altered in the second edition. Such is the difference between opinions and facts: the former are subject to continual fluctuations, the latter remain fixed and unchangeable.

In addition to the contents of the original work, the present edition contains upwards of a hundred pages of new matter, although, from the employment of a more economical printing, the apparent increase is less than seventy pages. The new materials added to the present edition consist of a description of microscopical forms, illustrated by a well-executed plate; a description of the physical structure of the blood according to the latest observations; the details of an improved process for analysing freshly drawn blood; a most valuable section devoted to the pathology and treatment of urinary diseases; and several useful gleanings from various sources added to the appendix.

A work which has long since received the stamp of professional approbation, like Rees on the Blood and Urine, is above criticism: the working chemist and physician has ere now well proved its utility. The contributions contained in the present edition are, as might be expected, worthy of the established reputation of the original treatise; and we shall content ourselves, and probably please our readers more, by confining our notice to extracts from the novel matters contained in the present volume.

“*On the Oxalate of Lime Deposits.*—The state of the system on which the secretion of urine characterized by the deposit of oxalate of lime depends is not well investigated. The pathological chemistry of

the subject is at present somewhat a matter of doubt, and it would almost appear that more than one source existed for the production of a tendency to this form of disease. Further and more correct observations are needed, into the physical condition of patients suffering from oxalate of lime deposit, than any we yet possess. We find that chemistry is at no loss, however, to devise theories for the transformation of several organic principles into oxalic acid, and whether it be derived from sugar, urine, or lactic acid, we can make our formulae by abstracting or adding oxygen as the case may require. Unfortunately, the addition or subtraction of oxygen necessary to some of these theories has not been proved or even rendered probable, and no good reason has been given in most cases for transforming one proximate element rather than another for the formation of a diseased product.

“ In connexion, however, with the subject of oxalic acid, as produced in the urine, I have great pleasure in noticing a contribution to the pathology of oxalic disease by Dr. Aldridge of Dublin(a), who so far differs from most other chemical theorists of the day, that he has really rendered it more probable that oxalic acid is formed from the litmic acid than from any other of the constituents of the urine. This gentleman has shewn that litmic acid, by the addition of the elements of water in varying proportions, may theoretically be converted into oxalate and carbonate of ammonia, hydrocyanic and formic acid, according to the circumstances of decomposition; and further, by heating urine, and in some cases evaporating it, has succeeded in producing reactions in the fluid indicative of the presence of the acids above named: oxalate of lime depositing, while evidence of the hydrocyanic and formic acids could be obtained from the fluid. This is really a step in pathology, and has more practical bearing than may at first sight appear evident. Now when urine is secreted by the healthy organism, we know that the constituents are so arranged that the fluid possesses certain definite qualities recognized as those indicative of health, and that when disease sets in there is sometimes observed a tendency on the part of the constituent elements of the fluid to arrange themselves in a different manner to this, and that, too, without any very notable increase or decrease in the proportion of such elements being observed. Considering the question in this point of view, and remembering that in Dr. Aldridge's experiments no reagents were had recourse to, and that ebullition alone produced oxalate of lime in healthy urine, which did not yield such crystals before being boiled, we are justified in the belief that such a deposit may very easily form in the urine, in certain states of the system, after secretion by the kidneys, and during its detention in the urinary tubes and bladder. It seems highly probable that in some cases which have been described, the oxalate of lime has been rather formed after the urine has been secreted, than as a result of the secreting process: and Dr. Aldridge's experiments point to the absolute necessity of examining the urine soon after excretion, and without applying heat, which tends to the formation of oxalate of lime even in healthy urine.’ —p. 147.

“ *Arterial and Venous Blood.*—Simon states that arterial blood

(a) See Bird on Urinary Diseases, p. 160.

contains more water than venous blood, and that the blood particles of arterial blood contain less colouring matter than those of venous blood. Denis did not detect more water in arterial than in venous blood, but found them alike in this respect. Hering examined the arterial and venous blood of several animals, viz., the bullock, the sheep, and the horse, and agrees with Simon in making arterial blood to contain more water than venous. Hering states the corpuscles in venous blood to exceed in number those of the arterial. Lecanu differs from all the foregoing chemists in finding a smaller proportion of water to exist in arterial than in venous blood; he also found a larger proportion of fibrine in the arterial blood. Simon, Denis, and Hering could discover no law as to the proportion of fibrine; sometimes it was in larger proportion in the arterial, sometimes in the venous blood. The evidence of other chemists is very conflicting as to the relative proportions of water and fibrine. There appears to be some modifying cause in action to produce these discrepancies, and which has been entirely overlooked; probably the time allowed to elapse after taking food before the blood was drawn may have caused these differences in result."—p. 194.

"*Blood of the Vena Porta.*—Schultz has experimented on this blood as obtained from the horse. He states it to be of a much darker colour than ordinary venous blood, but that it becomes brighter after a full meal. The neutral salts and atmospheric air do not brighten the colour of portal blood. Simon analysed the arterial and portal blood of a horse, and concludes from his experiments that portal blood contains less fibrine, more fat, more extractives and salts, and more colouring matter in proportion to globulin, than arterial blood."—p. 195.

"*Blood from the Hepatic Vein.*—This blood has been examined by Simon, who concludes from his analysis that it is richer in solid constituents than either ordinary venous or arterial blood, even more so than that taken from the vena porta. It contains less fibrine, fat, globulin, and colouring matter than the blood of the vena porta."—p. 195.

"*Blood from the renal Veins.*—This blood has been shewn by Simon to contain more solid constituents and albumen than that of the aorta, but it contains less fibrine, and fewer corpuscles."—p. 195.

"*Blood from the Capillaries.*—Pallas analysed blood taken by leeches and cupping, and by comparing his results with the analysis of venous blood, came to the conclusion that capillary blood is richer in solid and coagulable constituents than either venous or arterial blood. Denis contradicts this, having found that blood taken from the arm and compared chemically with that taken from the side of the chest of the same person by cupping, yielded results almost identical in the proportions of water, corpuscles, and solids of serum."—p. 195.

"*Blood of the Fœtus compared with that of the Mother.*—Denis found the blood of the fœtus to contain more solid matter and corpuscles than that of the mother. The fœtal blood contains more iron than that of the mother, the ratio being 2.5 to 1. His analysis was made on blood taken from the umbilical artery, and is compared with the analysis of the venous blood of the mother."—p. 196

PART III.

REPORTS, RETROSPECTS, AND SCIENTIFIC INTELLIGENCE.

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.

THE DIGESTIVE SYSTEM.

1. *Diphtheritis affecting the Larynx and not extending to the Pharynx or Œsophagus.*—Dr. Hutton presented a recent specimen of diphtheritis. Many specimens illustrative of this affection had been already laid before the Society, but the present had some points of interest which, he thought, rendered it not undeserving of notice. The subject from whom this specimen was taken was a male child, eighteen months old, admitted into the Richmond Hospital. It had been three days ill, and was in a very languid state; the fever was of a low type; the pulse frequent and weak, and the features were sunk, the respiration was croupy, both in expiration and inspiration, and there was cough, but it was not frequent. The usual means were employed, but without arresting the disease; the little patient died from obstruction of respiration. A short time previous to this a sister of this child, aged three years, had been brought to the hospital, labouring under the usual form of *inflammatory croup*, which was treated successfully by bleeding and the administration of calomel and ipecacuanha, tartar emetic, baths, &c. In the subject of the present case there was much prostration of strength, with low fever, and little indication of inflammatory symptoms. When the body was examined, it was observed that there was no diphtheritic deposit either on the pharynx or in the œsophagus; but it was effused over an extent of about two inches at the upper part of the trachea and larynx, about the rima glottidis, so that a very slight degree of spasm would be capable of closing it. The mucous membrane of the trachea was not very vascular, but there was blood-tinged mucus in the bronchi. A considerable part of the left lung was solidified; the opposite lung was healthy and crepitant; in the stomach the mucous coat

exhibited a slight pink tint; in the duodenum the follicles appeared enlarged, as in follicular enteritis; in the ileum a patch of the Peyerian glands was very prominent; the mesenteric glands generally were enlarged, but no deposit of tubercular matter could be detected in them. What was most interesting in this specimen was its exhibiting the diphtheritic deposit, limited to the upper part of the trachea and larynx, shewing that the absence of such deposit from the pharynx is not a sufficient indication that the croup is not of a diphtheritic character.—*1st March, 1845.*

2. *Perforation of the Stomach in its lesser Curvature; Opening into an abnormal Sac formed by old Adhesions of Omentum, in which the Stomach and Liver were contained.*—Dr. Stokes said the specimens which he then presented belonged to a case which was of great interest and importance in the history of perforations of the intestinal tube; that lesion is usually characterized by sudden peritonitis, and obstinate resistance to all remedies. In the present case the perforation was only ascertained in the examination of the body after death. The subject was a middle-aged man, whom he had been called in to see in consultation with Mr. Carroll. He complained of severe pain in the upper part of the abdomen. His aspect was sallow, contracted, and unhealthy. During four years previously he had been subject to an affection of the stomach frequently recurring, the symptoms of which were gnawing pain and pyrosis, for which Dr. Stokes had prescribed opiates. On the present occasion he was seen lying in bed; his countenance was anxious; he complained of a general uneasiness in the abdomen, which was distended, but he could not refer the pain to any one point in particular; the bowels were constipated, aperients failed to relieve them, and at night he had become worse; he had then great pain in the abdomen at the lower part of the left side; the pulse was feeble. Venesection was resorted to, but the blood which was drawn had no inflammatory appearance; the warm hip bath was used, and gave considerable relief, which continued until the following day; the belly then was greatly swollen, not uniformly, but into two distinct portions, one above the other, separated by a sulcus. These symptoms continued during the next fourteen days, with pain or distress referred to the diaphragm, and to the lower part of the left side; there were some intermissions from pain; the urine was natural; there was appetite for food, and in fact he took much nourishment. During the last days of his existence the tongue became dry and brown; there was a contraction of the abdomen just above the umbilicus. A great variety of treatment was used; purgatives had no effect; croton oil was tried, and then the long tube introduced into the rectum; enemata were thrown up, but all were quite useless; opium also failed; so much as nine grains were administered in one day, but without any apparent effect. The examination of the body after death was made by Dr. R. W. Smith. On laying open the abdomen it looked at first as if the diaphragm was double; this appearance

was caused by a chronic adhesion, almost ligamentous, of omentum, forming a dissepiment, between which and the diaphragm were included the stomach and liver, with some fluid intermixed with some of the ingesta, and a quantity of gaseous fluid; the liver had lost its convex form; part of the left lobe was actually concave, and was covered with matters that had been taken into the stomach; there was a large perforation in the lesser curvature through which these ingesta had escaped; there was an ancient ulceration, with well defined edges, within the stomach; the pylorus was contracted, but there was no cancerous ulceration; this ulcer was the chronic ulcer of Cruveillier and Abercrombie. There was soft and plastic lymph effused here and there among the intestines; the peritoneal inflammation was limited by the ancient omental adhesions, the effect of which was that the perforation had been made, not into the general peritoneal cavity, but into an abnormal sac of the peritoneum, in which the stomach and liver were contained. No similar case to this has been described; the perforation was not diagnosed; the symptoms which were present, the intermissions, and the absence of general peritonitis, sufficiently explain the cause of the deficient diagnosis. Yet perhaps it should have been suspected from the remarkable tolerance of opium which existed, and which Dr. Graves has observed to occur constantly in cases of perforated intestine. Dr. Stokes has himself seen twenty-four grains of opium given without effect, and he believes the same happens in all perforations of the peritoneum.—29th April, 1843.

3. *Jaundice; Fungous Circlet round the Orifice of the Ductus Choledochus; Dilatation of the Hepatic Ducts in the Liver.*—Dr. Stokes presented a series of recent specimens, portions of the liver, stomach, and duodenum of a patient whose case he considered to be unique as regarded its duration, and the extraordinary combination of symptoms which it exhibited; he knew of none similar on record; he had met with none similar in practice. The most obvious disease in the case was jaundice, a complaint to the history of which this case supplied some important additions. The subject of the case was a gentleman who described himself to have been in good health, to have been never ill up to the age of sixty-eight; he was of a spare habit, temperate and active, but latterly had taken less than his usual exercise. All through his illness he was seen by Dr. Stokes; that illness he would now proceed to describe. This gentleman had gone to bed in a state of apparently perfect health; during the night he felt an extreme itching of the skin; this subsided during the day, but returned during the following night. Dr. Stokes was then called in, and the state in which he found the patient was this: the skin was cool, the pulse quiet, the appetite good, and there was no complaint, except of the violent itching of the skin at night; there was a red-coloured sediment deposited from the urine. He continued for a week without any alteration in his symptoms; the stools were natural; there was no appearance of jaundice. At a consultation

on the case it was determined to be irregular gout, a conclusion principally founded on the absence of local symptoms. After a week had elapsed from the first indication of illness, he suddenly became deeply jaundiced (this was in January, 1841). There was no fever, and the appetite continued unimpaired during three weeks subsequent; then an intermittent fever set in, which continued, with some intervals of remission, up to the time of his death. This fever evidently depended on the presence of free bile in the general circulation. The accession of this fever was very sudden; there were no premonitory symptoms; it commenced with lassitude, rigors so severe as to shake the apartment, and which lasted for an hour; the rigors were succeeded by heat, but there was no sweating stage. During the fever the jaundice increased. The febrile attacks occurred sometimes on every second, sometimes on every fourth day, but whether the type was tertian or quartan was not determined: the faces were white. Under the use of mercury and bark he got better, and in the month of April appeared well; the stools were coloured with bile, the urine was clear, the febrile symptoms had ceased. He was then sent to the country for the summer, but about the end of May he went to London, and while there had another attack, the immediate cause of which was some excess in diet. These attacks were from that time very frequently repeated; they were excited by various circumstances, such as constipation, errors in diet, slight exposure to cold; but latterly they came on without any apparent exciting cause. After his return from London, a train of new symptoms appeared; he was exhausted by the journey, and on his arrival seemed more dead than alive. His discourse was quite unintelligible; he was in fact talking gibberish, yet he was not delirious; he had rigors, but these ceased after he had been some time in bed, and he became able to speak. Every second day there was a violent paroxysm; the stools were hard and white; constipation now ensued; severe uneasiness was felt about the fundament; purgatives gave no relief; there was constant tenesmus, and straining to pass matter from the bowels, after the exhibition of purgative medicines, but only thin matter, in small quantities, was discharged; the jaundice and the fever increased in intensity. On the second day of this constipated state, Sir P. Crampton inserted an instrument into the rectum, with which he removed some hardened feces; this was followed by seven or eight copious stools, and the patient from that time began to recover. The amendment continued for several months; he became fat and strong, had good sleep and spirits, until he became distressed at the death of some friends, when the symptoms of his illness reappeared. On every day, or sometimes every second day, he had a febrile attack, but without perspiration; this continued during a year. Before each of the attacks in this period he had a sense of great oppression in the head; during the intermissions the tongue was clean, the abdomen in a normal state, and the jaundice had almost entirely subsided. Of late there

appeared an irritable condition of the urinary organs; there was sometimes a copious discharge of urine, then suppression, and at same time anxious desire to pass water; great irritation of the bladder. The treatment adopted was various. Relief was latterly obtained by the use of blue pill, together with the sulphate of quinine. During the last eight days of his life the fever continued without intermission, and he died comatose. There had been no physical signs of any organic disease. Dr. Stokes therefore expected that some very local disease would be found to have given rise to all this illness. The body was examined after death: the liver was not at all enlarged, but there was a diseased state of the mucous membrane of the duodenum about the orifice of the duct; the ductus communis was enlarged in calibre, and so were the biliary ducts all through the liver; there were several elevations or prominences on the surface of the liver formed by true aneurisms or dilatations of the hepatic ducts. This circumstance Dr. Stokes remarked that he had once before met with, and he also referred to a paper by Mr. Lloyd, in the *Medico-Chirurgical Transactions*, in which a similar lesion is described. The orifice of the duct in the duodenum was surrounded by an irregular fungus, resembling an old cicatrix. The gall bladder was distended with bile; its coats were thicker than natural. The ductus communis was greatly dilated, but the obstruction to the flow of the bile had never been complete; the orifice, though obstructed, remained pervious. All the other viscera presented nothing abnormal. Here were all the morbid lesions localised, as Dr. Stokes had previously conjectured.—*11th March, 1843.*

4. *Follicular Ulceration of Ileum about the Ileo-cæcal Valve.*—Dr. Greene presented recent specimens of the follicular disease of intestines, the typhoid disease of Louis, an affection frequent in France during fever, and in this country, when it does occur, usually marked by such long continued stupor towards the close of the disease, as to be very liable to be mistaken for a cerebral disease. The subject of the present case was a boy æt. 10, admitted into the clinical wards of Sir P. Dun's Hospital, labouring under febrile symptoms of a low character; his pulse was quick, feeble, and compressible; he was thirsty; his tongue loaded, but red at edges; there was tenderness to pressure below the ribs on the right side that could be traced along the trajet of the ascending colon as far as the ileo-cæcal valve. The existence of an enteric affection was diagnosed; the treatment consisted of leeches to the abdomen, and saline draughts, &c. He continued for eight or ten days in a low state; after the 14th he complained of his head, tossed it about, and avoided light, yet the pupils were as yet unaffected; he vomited, but not frequently. Indeed, by any person who had seen him only during the last three or four days before his death, the disease might have been mistaken for hydrocephalus—the head was large in proportion to the body and the age of the patient. Dr. Greene considered the patient to be now affected by a twofold lesion, originating in the intestine, and subsequently affecting the brain. Leeches and

evaporating lotions were applied to the head, but still the symptoms progressed, stupor came on, the pupils became dilated, the child pointed to its head, there was once grinding of the teeth, but there were not the screams so usual in hydrocephalus. In examining the body after death, the only morbid appearances discovered within the cranium were a slight degree of injection of the vessels of one side of the brain, and some congestion and opacity of the arachnoid of the same side. In the stomach was a slight degree of vascularity; in the intestines was discovered an immense mass of ulceration in the vicinity of the ileo-cæcal valve, in patches and in distinct excavated ulcers—the patches diminish in size as we pass up the ileum, till at last there appears but hypertrophy of the muciparous glands, and afterwards but a slight prominence. Dr. Greene, after referring to the descriptions of this lesion of the intestines by Andral and Cruveilhier, observed, that the glands near the principal ulceration are always more or less enlarged, even on the peritonæum, external to that part. He then alluded to another case which he had met with in the Hardwicke Hospital, in which the disease in the intestines was not accompanied by any lesion of the brain; and concluded by observing, that in early life, as in the present case, the nervous system more readily takes on the sympathetic or reflected irritation, which here was so remarkable.—*25th January, 1845.*

5. *Stricture of the intestinal Tube at the Ileo-cæcal Valve.*—Dr. R. W. Smith presented a specimen of the ileo-cæcal valve, taken from the body of a man, aged seventy-four, who had obstinate habitual constipation, for which he was accustomed to take drastic purgatives. He rarely passed any solid fæces. He was seized with severe pain in the abdomen, commencing at the right side, and gradually extending over the entire of the belly. On the next day he had vomiting, symptoms of peritonitis were manifest, and he died thirty-six hours after the commencement of the attack. On opening the body, the usual signs of peritonæal inflammation were perceived, effusion of serum and lymph on the serous coat of the intestines. Just at the situation of the ileo-cæcal valve the intestine was strictured, so that a very small wire could scarcely pass above the stricture; the ileum was dilated, and contained several hard concretions, four of which were now produced; they were about as large as a shilling. The valve itself projects into the cæcum, and has become thickened and fibrous, and has some resemblance to a polypus. The appendix vermiformis could not be found.—*8th February, 1845.*

6. *Immense Development of Scrofulous Matter in the Thorax and Abdomen, subsequent to the Dispersion of Scrofulous Tumours in the cervical Glands; Dropsy; incipient Stage of malignant Disease.*—Dr. Law directed attention to two cases representing the progressive diminution of enlarged cervical glands, from treatment. He had on a former occasion laid before the Society a cast of these glands when very enormously enlarged, and so completely encircling the neck

as almost completely to prevent its motion. [*Vale* Proceedings of 11th February, 1843.] The case was that of a boy *æt.* 16, in the employment of a brazier in Liverpool; he had become affected with excessive enlargement of the glands on the right side of his neck, causing great deformity, and to obtain relief from which, he had applied at several medical institutions in Liverpool, and then came over to Ireland, where he placed himself under the care of Dr. Law, in Sir Patrick Dun's Hospital. Iodine was employed both externally and internally; the preparations used being the iodine ointment and the hydriodate of potash; after a considerable time the disease apparently yielded to the treatment; several of the enlarged glands suppurated from time to time, and discharged scrofulous matter, and the disfigurement almost completely disappeared. One cast was taken on his admission, the other a year afterwards: the latter showed a very remarkable diminution in the size of the tumour. The patient, thus relieved, left the hospital, was able to work, and occasionally returned to shew himself. Five months ago he began to complain of hæmoptysis and cough; Dr. Law apprehended that phthisis might be manifesting itself, and took him again into the hospital; he was there relieved by treatment, and was again discharged. A week ago he was re-admitted; he was generally anasarcaous, and had besides ascites, and effusion into both pleuræ; he was also labouring under bronchitis, engaging both lungs; his skin was hard, dry, and branny. On the first day after this readmission he appeared relieved by treatment, and on the second he still appeared better; but on the morning of the third Dr. Law was informed that he had become very drowsy during the preceding day, that coma came on towards evening, and that in that state he had expired. On opening the body a quantity of serous fluid, not discoloured, was found in the peritonæum; but there was no appearance of inflammation. In front of the lumbar vertebra there was a tumour, enclosed within a dense, fibro-cartilaginous cyst; this mass, which was firm externally, was somewhat softer at the centre, and strongly resembled the scrofulous tumour which has been met with in the liver. A similar tumour was connected to the spleen, which was of an almost scirrhus hardness, and had several white patches of lymph deposited on its surface. Proceeding with the examination of the present case,—on laying open the thorax, there was much fluid observed in both pleuræ; there was a small cavity in the left lung, and towards the apices of both a few dispersed tubercles. In the upper part of the chest there was an immense mass of glands, occupying both the anterior and posterior mediastinum, but without compressing the trachea. This mass was continuous with the lymphatic glands of the neck, which at both sides were enlarged, and contained scrofulous matter. In connexion with this case, Dr. Law inquires how far it may be considered safe to meddle with these external growths; or does the disease, in consequence of their being dispersed, become concentrated in the interior of the body? In this instance a hope had been entertained

that the diathesis might be corrected by the external and internal use of iodine. In another case Dr. Law thinks that the occurrence of phthisis has been averted by prudently avoiding to meddle with an exterior serofulous tumour.—22nd February, 1845.

7. *Malignant Deposition in the anterior Mediastinum and in the Abdomen.*—Dr. O'Ferrall presented specimens of extensive malignant disease in the thorax and abdomen of a boy four years of age. A few weeks previous to his admission into St. Vincent's Hospital he was observed to be dull, to lose his appetite, his bowels became constipated, and respiration was performed with difficulty. Three distinct tumours could be perceived in the abdomen, one above, and one at each side of the umbilicus. In the thorax there were extensively diffused sibilous and mucous râles. In a few days after this first examination was made, the tumours changed their appearance, and rapidly increased in size; they seemed to coalesce, and acquired the shape of intestines; in this stage they resembled the coils of intestine, containing scybala, which are often met with in long continued constipation; but this in a child is very uncommon. As there was constipation, aloetic purgatives were exhibited, which brought away scybala, after which the tumours became less perceptible and the dejections natural, yet the tumours again increased in size, although the bowels were become perfectly regular. It was now evident that the tumours did not consist of intestines distended with hardened fæces, nor were mesenteric tumours or strumous peritonitis to be expected, for there was no tenderness of the abdomen, no indication of tubercular deposition, and besides the peritonæum of the abdominal parietes glided smoothly over the tumours. The tumours continued to increase; there were frequently recurring attacks of acute bronchitis, and the child gradually sunk. Malignant disease was diagnosed when the tumours began to enlarge. In the examination after death, nothing remarkable was observed in the head. In the thorax, on raising up the sternum, a morbid growth was discovered filling the anterior mediastinum; it was of a light ash colour, was partly encephaloid, disposed in the cellular matter about the pericardium in part of its extent, but the superior and posterior part externally was free, and the serous layer of the pericardium was altogether unaffected. This mass of malignant matter could be dissected away completely from the pericardium. The heart and the valves were normal. In the abdomen the tumours were found to consist of large coils of intestine, indurated and increased in bulk by a deposition of similar ash-coloured malignant matter, which surrounded the intestine, and was in greatest quantity towards the mesentery; the peritonæum was not affected, but all the tissues between it and the mucous membrane were confounded together; the deposit had commenced about the ileum; it extended about five inches in length of intestine in one direction, and eight in another. There was no lymph effused in any part of the abdomen; there was a large malignant mass behind the stomach, which pressed it forwards. This case was remarkable for the early age of the sub-

ject, the absence of inflammation, which he had also remarked in a former case, and the period within which so great an extent of disease was formed.—*2nd March, 1844.*

8. Malignant Tumour in the left Iliac Fossa, simulating Morbus Coxæ; Deposit of malignant Tubercles on the abdominal pelvic Viscera; Cancerous Infiltration of the Cancelli of the Femur.—Dr. O'Ferrall presented specimens of malignant disease affecting the thigh bone and several of the viscera. He alluded to specimens of disease of the hip-joint which he had formerly exhibited, in which the shortening of the limb had been satisfactorily explained; he had now begged to lay before the Society specimens of another affection which he believed to be even of greater interest. The diagnosis between morbus coxæ, and other diseases of the hip-joint and neighbouring parts, is often very difficult, and had engaged much of his attention. He had already endeavoured to prove that several distinct diseases—osteitis, periostitis of the upper third of the femur, and malignant disease of the same bone—may all resemble morbus coxæ in their symptoms during life. The specimens now produced were of the last of the affections which he had mentioned as liable to be mistaken for morbus coxæ; they were taken from the body of a man aged 42. His symptoms were pain in the hip, groin, and knee; lameness, which gradually increased; the foot was advanced when he stood in the erect posture; the toe was directed to the ground, and the nates were unequal and oblique, one side being lower than the other. The drawings on the table expressed all the appearances. The diagnosis was very difficult: it was in fact impossible to determine in the early stage of the disease; there was as yet nothing to indicate that it was malignant disease; there was no contamination of the lymphatics; no deposition in other parts could be detected: there was, indeed, a swelling about the hip-joint, and this was increasing without suppuration; after some time the groin became enlarged; there was a tumour formed in the left iliac fossa, which had the peculiar conical shape which Mr. O'Ferrall had before noticed and described as occurring in malignant disease. The tumour became purplish, and had small veins ramifying on its surface; it was very hard; it increased in size so as to encroach on the pelvis; then pain was felt very severe at night; the bladder was affected by the pressure of the tumour, and caused much trouble by the necessity for frequently evacuating it; the limb became œdematous, and as the tumour extended itself towards the right side, the right lower extremity also became œdematous; the patient gradually sank. The body was examined after death: extensive malignant deposition had occurred in the abdomen; the intestines were covered with cancerous tubercles (this had been observed in other cases by Dr. O'Ferrall, and also by Mr. R. W. Smith); the pelvis was nearly filled with the malignant tumour which had been noticed during life; it completely surrounded the bladder, which was thickened, and was also contaminated by the same malignant matter; cancerous deposition existed in the muscular and cellular coats of the bladder: the large tumour had originated in

the periosteum at the back of the femur, from which it grew in every direction, after passing under Poupart's ligament into the pelvis; the cavity of the hip-joint was as yet unaffected, but a vertical section of the femur itself shewed that there were masses of cancerous matter deposited in the cancellated structure; and the interior of the medullary canal was very vascular. The case was remarkable for the extent of the cancerous deposition, the various situations in which it was met with, and the difficulty of diagnosis, at least in the earlier period.—25th March, 1843.

9. *Chronic Peritonitis and Hydrocephalus.*—Mr. Adams said, I wish to lay before the meeting a case of chronic strumous peritonitis. The patient had been affected by this disease for about a month, when he was suddenly seized with an attack of acute hydrocephalus, which in eight days carried him off. This unhappy event was the more to be lamented, as the lad had been lately looking so well, that he was no longer considered to be a subject for medical care, and complained so very little that his parents considered him cured of the chronic disease of the abdomen, with which he had been afflicted. As opportunities for examining into the anatomical character of chronic peritonitis, except when the disease has arrived at its last stage, seldom occur, we did not fail to seek permission to make a post-mortem examination, which was allowed. The result of it I shall now lay before the Society, prefacing it by a short account of the symptoms which the patient presented, and the medical treatment which was adopted.

Case.—M. W., aged 12, in January 1844, had a gastro-remittent fever, which continued for six weeks; he was apparently well of this fever, and had been able to walk out, when he began first to complain of acute, though transient, abdominal pains. Mr. Harrison, of North Earl-street, who attended the boy, found that these pains were increased by pressure, and he also noticed that the lad habitually inclined his body when he stood or walked before him, although well enough to go out in the open air. He complained of some thirst, and had other pyrexial symptoms. I met Mr. Harrison, in February last, in consultation on the case. I noticed that the boy's countenance was pale and listless, or, to use the language of Dr. Pemberton, "*the countenance was full of lungour, and the face pale and doughy,*" the tongue was furred. I learned that the appetite was deficient, the *urine invariably scanty*, red and turbid; the alvine dejections were dark and fetid, and *very large in quantity in proportion* to the food taken. The abdomen, exposed while the patient stood before us, was observed to be unusually prominent: it felt more solid than natural, and when percussion was carefully made a distinct feeling of fluctuation of fluid in the cavity of the abdomen was perceptible. From this combination of symptoms, it was plain the disease was chronic strumous peritonitis with effusion.

Treatment.—Leeches and warm cataplasms to the abdomen, hydriodate of potash, and iodine in various forms, as external applications, confined by lint and covered by oiled silk. The hydriodate

of potash and iodine were also given internally in full doses; the skin was relaxed by warm baths. The usual measures were also ordered to improve the very defective secretion of the liver and kidneys, and among them calomel combined with ipecacuan was ordered. The application of leeches was frequently repeated, as well as blisters. Animal food was prohibited, and milk and a farinaceous diet allowed. The patient was much relieved after having been subjected to this treatment for a month. Country air having been prescribed he tried the mountain air near Dundrum. He remained there for three weeks, but did not improve much, and then the sea-side was preferred (Clontarf), where he recovered rapidly in every respect. He was brought to my house last summer, and I found that the boy looked much better, although he was still pale; he had gained flesh. The abdomen was much smaller; he did not now complain of pain on pressure; and no fluctuation could possibly be perceived in it. I could not, however, feel by any means satisfied that the abdomen was restored to its natural softness and pliancy. It is worth noticing that, while this patient was at Clontarf, a great act of indiscretion was well nigh proving fatal to him, as it brought on an attack of acute peritonitis, which placed his life in jeopardy for several hours, and obliged Mr. Harrison, who was called to him at night, to have recourse to the most active means to subdue it. He recovered in about ten days from this attack, and seemed as well as he had been previously to it, looking rather pale, languid, and delicate; but he did not complain of being ill, and he had quite recovered his appetite, walking erect as in health; he was no longer considered as an invalid. Still, his bowels required to be relieved by castor oil about twice a-week. On the 6th of February, 1845, Mr. Harrison was called to see this boy. He complained greatly of his head, his skin was hot, his tongue full, his pulse 120, his eye was even more than usually languid, his looks depressed. Mr. Harrison was particularly alarmed at the state of irritability of the stomach, which nothing could allay, and which he looked upon as symptomatic of something wrong going on in the brain. On the evening of Saturday, February 15th, I was called upon to visit him at twelve at night, to meet Mr. Harrison. I was informed that the boy had suddenly lost *all power of speech*; his manner was now surly and morose; he lay on his side, with his hand under his cheek. I asked him to put out his tongue; this he could not or would not do, but he opened his mouth in an awkward and extraordinary manner. His appearance and manner put me in mind of a person recovering from a concussion of the brain. Vision was perfect, the pupil natural. The opinion formed was, that hydrocephalus existed.

The prognosis was, of course, most unfavourable.

Treatment.—Leeches behind the ears, the scalp was shaved, and cold lotion applied; afterwards a blister to the nucha; two grains of calomel every three hours, and also mercurial inunction; the object being to produce rapid mercurialization of the

system. On Sunday the parents reported favourably of the boy, they thought he made a much better attempt to speak; but on Monday we considered him remarkably weak; his pulse thready, the hands cold and more or less livid. He died at 10 o'clock, P. M., this day, having had twitches of the muscles of the face, and subsultus tendinum to a great degree, but no general convulsion.

Post Mortem.—The body was not much emaciated: when the cavity of the abdomen was exposed, the omentum lay over the intestines, and was here and there partially adherent to them; white "tubercular accretions," averaging about the size of a garden pea, were seen in the omentum, and these were placed universally *beneath* the serous layer of the peritonæum, on the liver, in the omentum, and on the kidney; a few were much larger than these, even to the size of a nutmeg; these, when cut into, did not exhibit any trace of softening or cheesy matter in their interior: *externally* they had a yellowish fatty appearance; *internally*, they were of a greenish hue and of a homogeneous consistency throughout.

The kidneys, having been always deficient in their action, were carefully inspected; they were throughout of a deep blue colour and much congested, resembling the spleen in appearance.

Several coils of the small intestines were agglutinated together; when a few of these were separated, some purulent matter escaped, in other places the intestines were in close contact and adherent, without any interposition of matter.

In Dr. Baillie's fourth fasciculus, Plate I., he has given a drawing which, as he states, "exhibits some small scrofulous matter upon the outer surface of the intestines," constituting "*an uncommon appearance of disease*;" a portion of the jejunum is represented with a great number of scrofulous masses covering its outer surface, they "adhere immediately *behind* the peritonæum, and they resemble in their texture a scrofulous absorbent gland, which is just beginning to suppurate. These masses are generally found to adhere, not only to that part of the peritonæum which covers the intestines, but to every other part of it, especially the omentum." This description, given by Dr. Baillie in 1799 of an "uncommon disease" of the peritonæum, evidently belongs to the disease we are now considering, but only to the disease in a comparatively early stage, "for when the patient lingers long for two, three years or more, and dies of chronic peritonitis, all the convolutions of the intestines are found usually blended into one mass, so that it is impossible to separate them by dissection, one from the other, or from the peritonæal coat of the parieties of the abdomen."

Mr. Adams exhibited portions of the brain, and its membranes, in this case, and mentioned that the *lateral* cerebral ventricles were much dilated, and that the arachnoid membrane, particularly where it covered the pons varolii and numerous nerves in this region, was opaque and elevated by serous effusion; all the nerves, except the optic, which seemed free, were covered by thickened arachnoid, and bathed in serum. There was no tubercle or tuber-

culous accretion in the brain or in its membranes. He also pointed out various portions of the small intestines studded over with small, whitish, "tubercular accretions," exactly resembling those delineated in Dr. Baillie's plate already referred to—as well as portions of the liver, which were of a healthy colour and structure, but the serous membrane was also elevated by small, whitish, tubercular bodies about the size of garden peas; some of the largest of these were attached to the serous covering of the stomach, and to the lesser omentum. The mucous membrane of this organ, and of the rest of the intestinal canal, seemed healthy as far as it was examined. The mesenteric glands were not diseased.

He also exhibited the kidneys, which corresponded to the description already given. The substance of the lungs was perfectly free from tubercle, but one of these *tubercular accretions* was also seen beneath the pulmonary serous membrane.—*February 15, 1845.*

THE CIRCULATING SYSTEM.

1. *Pericarditis; Thickening of the Pericardium; Copious Effusion of sero-purulent Fluid tinged with the colouring Matter of the Blood.*—Dr. Law presented a specimen of inflamed pericardium taken from the body of a man forty-one years of age, of intemperate habits. Many years ago he had suffered from rheumatism of the right hip. When he was seen by Dr. Law in Sir Patrick Dun's Hospital, he complained of what he designated "an impression on the heart." He was labouring under oppressed respiration, yet, when the chest was examined, no morbid physical sign could be detected in the lungs; the pulse was fluttering, intermittent, and so unequal and irregular that it could not be counted. Below the mamma, on left side, auscultation detected a smooth rubbing sound, which could also be heard near the sternum; there was dulness extending beyond the limits of the præcordial region, and a fulness which is characteristic (with the other symptoms) of pericarditis with effusion; there was a disposition to faint on turning on the side, but there was no pain. The diagnosis formed was pericarditis, with effusion; he was treated by mercurials and blisters; in a few days he was greatly relieved, and, while under the influence of mercury, could lie on either side: after this he got worse, had an attack of syncope, of long duration, on the night previous to the visit at which Dr. Law remarked the change for the worse; gradually the dulness of the chest became more extensive, and the friction sound more circumscribed; the right leg became œdematous, and he sunk. The examination of the body, after death, discovered a well marked specimen of acute pericarditis. On opening the thorax in the usual manner the heart alone presented itself to view; the pericardium was distended with fluid, with which it was completely filled. This fluid had a sanguineous appearance, being serum deeply tinged with blood. On slitting up the pericardium, the right ventricle presented itself to view; the left ventricle was a good deal redder than the right, but much of the vividness of colour had, at the time of ex-

hibition, disappeared from the specimen; the lymph on one ventricle differed in appearance from that on the other, that on the right side being smooth, whilst that on the left was rough and reticulated; the pericardium was very thick, hence it was suspected that it had been the seat of more than one inflammation, and there was the greater probability of this having been the case, as the patient had been four months ill. It might be conjectured that the first inflammation of the pericardium was attended with an effusion of lymph, which had a tendency to assimilate with the serous membrane that had secreted it, and that this lymph, in its membraniform condition, had become the seat of a later inflammation, or of hyperæmia. Several specimens have been shewn, which prove that this membrane may be the seat of hyperæmia, or, as in the present instance, of sero-purulent effusion, and again, in others, it may be the depository of tubercle. The last mentioned condition was exemplified by a case which came under the care of Dr. Osborne. A man entered Sir Patrick Dun's Hospital affected with pleurisy of the right side. He had been exposed to severe cold on the deck of a vessel coming from Liverpool, but otherwise gave a very vague account of the commencement and progress of his illness. After his death, in the hospital, his body was examined, and the whole of the right pleura was found coated with a light reticular membrane, deposited on the serous surface; tubercles were scattered over this and on the surface of the heart, evidently the result of a second inflammation attacking the false membrane formed by a previous inflammatory process, just as happens in cases of chronic peritonitis.—*25th March, 1843.*

2. *Endocarditis engaging both Mitral and Tricuspid Valves, with ruptured Chordæ Tendineæ, &c.*—Dr. Law presented to the Society a heart exhibiting different lesions; a considerable thickening of the mitral valve, with elliptic contraction of the left auriculo-ventricular opening, rupture of a chorda tendinea, thickening to a less degree of the tricuspid valves, open foramen ovale, concentric hypertrophy of the left ventricle, and dilatation of the right. The subject from whom this was taken was a woman 45 years of age, admitted into Sir Patrick Dun's Hospital in an advanced period of dropsy; she had ascites, hydrothorax of the pleura, with considerable difficulty of breathing, and dropsical swelling of the extremities. On examining the chest by auscultation a loud musical bruit was discovered below the left mamma, and another nearer to the sternum weaker than the first; both these were single, accompanying the first sound. The history of the case was, that this patient had had a severe rheumatic attack several years previously, after which her breathing was never so free as it had been before the attack. Three years ago she was prematurely delivered of a child, in consequence of a fright received during pregnancy; on that occasion she suffered very profuse hæmorrhage. Two years later she became dropsical, and when she presented herself for admission into hospital, she was in such a state that there was no hope of more than some slight and tempo-

rary alleviation of the more distressing symptoms. Three days after her admission she died suddenly. On examining the body after death, the heart was found in the state already described; on cutting into it, what at first appeared to be a vegetation on the margin of the left auriculo-ventricular opening, was found to be evidently a ruptured chorda tendinea. There was extensive serous effusion into the peritoneum, and also into the pericardium and right pleura; the liver was hardened, and this state of the liver might perhaps be considered as, at least, influencing the disease of the heart; disease of the liver is often the cause of disease of the heart; and again, disease of the liver is not unfrequently a consequence of disease of the heart, which had already been made the subject of observation to the Society by Mr. R. W. Smith, in his account of the late Dr. Colles.

Dr. Law was of opinion, that by attention to the order of time at which the different dropsies occur, we shall be able, in general, to determine the relations of these different lesions to each other. Our diagnosis will be assisted by the fact, that when an indurated liver gives rise to cardiac affection, there is no abnormal sound, but only increased action and impulse of the heart, while the affection of the liver, dependent upon cardiac disease, being little more than mere transient congestion, is generally the result of valvular disease in this organ, and therefore always attended with an abnormal sound.

He would direct attention to what first appeared a vegetation on the edge of the mitral valve, but what closer examination discovered to be a ruptured chorda tendinea. A second preparation which he exhibited presented the same lesion, he had regarded it when it first came into his hands, as a vegetation, but he is now satisfied that it is a ruptured chorda tendinea. An extremely irregular, tumultuous action of the heart, and sudden death, occurred in both. He believes this lesion to be much more common than is generally suspected, in consequence of these tendinous chords becoming brittle from previous inflammation.

Dr. Law alluded to another instance which he had met with of vegetations on the valves similar to those in the present specimen; and having pointed them out in the preparation, observed that the symptoms in both cases were the same. From these cases, and from one produced to the Society by Sir H. Marsh, he would deduce the conclusion, that ruptured chordæ tendinæ are among the causes which produce sudden death, this rupture being attributable to the effects of inflammation, by which the chordæ tendinæ are weakened and rendered brittle.—*2nd March, 1844.*

3. *Aneurism of the Abdominal Aorta; Hæmorrhage into Abdomen and Thorax.*—Dr. Law observed, that he had already at former meetings of the Society produced several specimens of aortic aneurism, and that he had now to present another, not inferior in interest to any of those which he had before alluded to. The disease, in the case to which the present specimen belonged, had existed for a long time, before the patient, a labouring man, thirty-five years of age, sought to obtain medical assistance. He was admitted into Sir Patrick Dun's

Hospital at the request of Dr. Scriven, under whose observation he first came, and the description which he then gave of his complaint was such as led Dr. Law at once to the suspicion of its being aneurism of the aorta. Between the ensiform cartilage and the umbilicus there was a soft bellows murmur; there was also considerable pain, which had commenced suddenly, and had now continued during three years, besides which, there was in this, as in some former cases, occasional lancinating pain; the permanent pain was of an aching character; the diagnosis formed was, that aneurism existed, a diagnosis which was rendered more confident by a consideration of the pain endured by the patient resembling what has been already described in former cases communicated to the Society. After this man had been some time in the hospital his sufferings became extreme, the pain darting down the back and into the left testis; the greatest severity of these paroxysms was about nine o'clock every evening; a diastolic pulsation was perceptible in the side; he was treated with anodynes; so much as nine grains of the Extr. Opii aquosum being given during the twenty-four hours; besides this internal use of opium that medicine was also administered in enemata, and a solution of the muriate of morphia was applied to the pubis, denuded by blistering: by these means he often obtained three days' respite from the darting pain. On Thursday week, at ten a.m., the nurse mentioned that he had got up out of bed at five o'clock that morning, and that he had had a tremor of the whole body, which continued twenty minutes. On examining him now it was remarked that the murmur and the pulsation in the side were not discoverable; the left portion of the abdomen was tender to pressure; part of it was distended, and gave a clear sound, the remainder sounded dull; at ten o'clock p.m. the pulse could not be felt at the wrist; on the following day there was neither souffle nor pulsation; on Saturday a diffused *bruit de soufflet* could be perceived in the epigastrium; in the heart there was but a single sound, a circumstance often observed in cases of great exhaustion; the pulsations of the heart were very rapid, and the pulse could be distinctly perceived in the femoral artery of each side. On Sunday he appeared to have got better; there was less fulness in the side, but between the spine of the ilium and the symphysis pubis, on the left side, there was an obvious fulness; he was allowed chicken for his dinner, and expired suddenly in the act of eating it. An examination of the body was made ten hours after death: on opening the thorax a quantity of serum welled up from the left pleura; the lung was concealed by a large coagulum of blood, which even encroached on part of the anterior aspect of the heart; in the abdomen, the colon lay in close contact with a tumour on the left side of the spine; this had been felt during life, and consisted of a large mass of coagulated blood; the mass of coagulum in this situation weighed two pounds; that in the thorax weighed three pounds; the aorta, at the level of the celiac axis, was dilated into a cavity which led into a bilocular aneurism, of which the greater portion was situated on the left side;

on the right side was a cavity capable of containing an ounce, and in this the eroded bodies of the adjoining vertebrae could be felt; the cavity on the left side was filled with coagulum; the coagulum on this side extended from the diaphragm to the brim of the pelvis; some of the effused blood had forced its way upwards through the diaphragm into the thorax. This aneurism, arising from the posterior wall of the artery, lay completely behind the peritoneum; the parietes of the aneurismal cavity were very thick; the rupture had occurred in the superior part. Dr. Law observed that aneurism of the abdominal aorta had sometimes been mistaken for lumbar abscess; the character of the pain he believed to be diagnostic; he had noticed, in several other cases as well as in this, the same description of pain; the boring pain he believed to be connected with the process of erosion of the vertebra, induced by the pressure of the tumour; the darting pain always follows the course of the intercostal, or of the lumbar nerves, which were those most exposed to injury from the effects of these aneurisms on the vertebral column.—8th April, 1843.

4. *Aneurism of the abdominal Aorta, involving the Celiac Axis, bursting by a large Rent into the Peritoneum; Gradual Separation of the serous Coat from the Liver and Stomach by the Aneurism; Absence of Caries of Vertebrae.*—Dr. Stokes presented a recent specimen of aneurism of the abdominal aorta engaging the celiac axis, which had terminated by sudden rupture into the peritoneum. There were some remarkable circumstances in this case. The patient, a middle-aged man, a printer, first applied for advice at the house of Dr. Stokes, when he had been a year labouring under his complaint, which Dr. Stokes recognized as abdominal aneurism; he described himself to have had several intervals free from any suffering, a circumstance which has been noticed in this disease by Dr. Beatty(a); but latterly these intervals had diminished in frequency and duration, and he became unable to stand or walk: he was attacked by violent paroxysms of pain in the back, and often also in the side and stomach, and had also a degree of constant pain, as had been observed in other cases: the hand applied to his epigastrium detected a violent, diastolic, pulsating tumour, over which a soufflet was distinctly audible. Two days after making these observations, Dr. Stokes again saw this patient in the Meath Hospital; the tumour in the epigastrium had subsided, but the soufflet remained, and in two days more the tumour was imperceptible, so that Dr. Stokes began to hesitate as to the correctness of his former opinion of the case. The patient now mentioned, that when he lay on his side he felt at ease, and that the tumour disappeared, but that when he lay on his back the pain returned, and the tumour gradually reappeared. He volunteered to re-produce the tumour, and effected this, in Dr. Stokes' presence, by altering his position to lying on his back. This patient died suddenly. The aneurism was found under the crura of the diaphragm. Previously to the fatal rupture, the aneurism increas-

(a) Dublin Hospital Reports, vol. v. p. 173, *et passim*.

ing in bulk, had been the means of dissecting the peritonæum from the liver and the stomach; a large clot of blood was observed confined between the stomach and its peritonæal coat; the rent into the peritonæal cavity was very large, and was formed in the supero-anterior aspect of the aneurism. Dr. Stokes ascribed the death more to the suddenness of the hæmorrhage than to its amount. There was in this case no caries of the vertebræ, therefore it may be concluded that lesion of the spine is not the true cause of the severe neuralgic suffering observed in this disease. A more important question arising out of this case was, what caused the variation in the size of the tumour? When an unusually large left lobe of the liver, or a pancreatic tumour, exists, the pulsations of the abdominal aorta are increased immediately by turning on the back, but in this case the increase was gradual. Dr. Stokes inclines to attribute it to some cause acting on the innervation of the aneurismal sac.—*14th December, 1844.*

5. *Double Aneurism of the ascending Aorta; Bloody Fluid in Pleura.*—Dr. Law presented a specimen of double aneurism of the aorta. The case had been nearly a year under Dr. Greene's and his observation. The subject was a man, æt. 92, a free liver, and had several times been mercurialized; he was by trade a slater, and had met with several accidents; had broken the right clavicle and two of his fingers by falling from a height. He had given up working three weeks before he applied to Dr. Greene; he had then pain in the chest; there was dulness on percussion at the upper part of the sternum; there was a double pulsation behind the top of the sternum; and an indistinct pulsation under the acromial end of the left clavicle; there was also a slight degree of dysphagia. After he had been two months under Dr. Greene he came under Dr. Law's care, and the opinion of both was that it was a case of internal aneurism. On the last occasion of this man's coming into hospital he was suffering under dyspnœa and bronchitis of both lungs; the respiration was feebler in the left, and there was now a distinct pulsation under the left clavicle; there was also a pulsation in the posterior part of the thorax, at the same side: the chest sounded dull under the clavicle, and there was no respiration in that place. The diagnosis formed was, that there was aneurism of the artery at the point where the pericardium is reflected. This locality of the aneurism was suggested by the fact of the pulsation being double; and as such locality is difficult to reconcile with the pulsation posteriorly, the existence of two aneurisms was conjectured. In a few days the pulsation was audible, posteriorly, all through the lung. On the fourth day it was learned, when the hospital was visited, that the patient had fainted during the night; he was very cold, and was covered with a clammy sweat; the pulse at the wrist was no longer perceptible. On the following day (the 5th), the dulness had extended in the left side, both laterally and anteriorly. For a month from this time he appeared to suffer only from difficulty of breathing; then hæmoptysis came on suddenly, and a

sense of suffocation, in which state he died. When the body was opened a considerable quantity of bloody fluid was found in the left pleura; of this three quarts were sponged out; there were several large recent coagula mixed in it; on lifting up the sternum a large tumour was observed in front of the dorsal vertebrae; this was traced up behind the arch of the aorta. This tumour consisted of coagulum; posteriorly the bodies of the vertebrae (and the first and second ribs) had been eroded. The heart itself was not at all increased in size, but the ascending aorta and the arch were dilated to almost twice their natural size: posteriorly, at the point where the left subclavian artery is given off, there was a circular opening about the size of a half-crown piece, leading into a large aneurismal sac, containing a clot, part of which was attached to the sac by small processes or pedicles; part of the walls of the artery was ossified, and there was atheromatous deposit on some portions of it. There was a chamber occupying the inferior half of the pleural cavity, and which contained the fluid blood; it had the appearance of a circumscribed pleuritis; its highest point or roof formed the floor of the aneurism: as no communication between the aneurismal sac and this chamber could be discovered, it occurred to Dr. Law to refer the passage of the blood from the one into the other, to endosmose and exosmose. There was an opening from the aneurismal sac into the lung, whence the hæmoptysis just before death. In this case there had been no abnormal sound, which agreed with Dr. Law's observations of other cases of aneurism of the thoracic aorta, a *bruit de soufflet* being present only when the valves are involved.—9th December, 1845.

THE RESPIRATORY SYSTEM.

1. *Edema of the Glottis: Erysipelas propagated to the Mucous Membrane of the Femur and Larynx; Scrofulous Abscesses in the Neck.*—Mr. R. W. Smith presented a specimen taken from the body of a man æt. thirty-six, who laboured under strumous enlargement of the cervical lymphatic glands; several of the tumours suppurated, and the matter made its exit near the ear: slight febrile symptoms followed, and in a few days erysipelas appeared on the neck and lower part of the face: after a few days more the erysipelas began to fade from the skin, but at the same time spread over the lips and attacked the mucous membrane of the mouth: difficulty of breathing and dysphagia rapidly succeeded; the patient became semi-comatose, and died. Upon examination of the body it was found that the erysipelas had spread to the orifice of the larynx, producing œdema of the glottis: the submucous tissue of the arytenoid region being infiltrated with serum. Mr. Smith also detailed the case of a man æt. forty-eight, who was admitted with erysipelas of the head and face; upon the seventh day after the receipt of a lacerated wound of the scalp the erysipelas spread to the mucous membrane, and the man died suddenly upon the twelfth day. Post mortem examination discovered effusion of serum in the submucous tissue, covering the

left arytenoid cartilage; the mucous membrane was elevated in the form of a tense, shining vesicle, which overhung and closed the orifice of the larynx.—*8th April, 1844.*

2. *Pneumonia supervening on Diabetes; Phlebitis.*—Dr. Law said it was well known to pathologists, that diabetes is much less understood than many other diseases; as yet pathology might be said to be at fault about it, and a variety of opinions exist as to its nature, some maintaining that it depends on a morbid state of the kidneys, while others attribute it to a morbid condition of the blood, caused by some derangement of the organs of assimilation. The case which he was to describe was that of a young man, *æt.* 20, who had laboured under the disease for a considerable time, at least for eighteen months: his symptoms were, urine increased in quantity, of augmented specific gravity, and saccharine; he was emaciated, greatly debilitated, had excessive thirst, and a ravenous appetite; he had also cough, and there was evidence of tubercles under the left clavicle. Under the use of tonics he got better, the urine became diminished in quantity, but its quality was not changed; while thus amending, he was attacked with phlebitis in the left saphena vein; there was considerable pain in the popliteal region, and the limb became swelled below the knee; leeches were applied, and he was relieved: after this the cough became more distressing, and then became suddenly aggravated: the aggravation was so sudden as to induce a suspicion of pneumothorax having occurred; but on examining the chest it was found dull to percussion over the posterior part of the left lung, and a large crepitus was detected; there was evidently an unhealthy inflammation of the lung, which is so frequent a termination of diabetic cases: there were aphthæ on the mucous membrane of the mouth and fauces; swallowing became difficult; there was pain in the side; and in thirty-eight hours from the accession of this aggravation the patient died; his pulse was 190, shortly before his death. When the thorax was opened there was found purulent effusion in the left pleura; purulent matter and lymph were spread on the lung; the apices of the lungs were adherent to the parietes of the thorax: in the apex of the left lung there were tubercles; there was a bag of purulent matter in the base round which the lung was in a broken-down, sloughy condition; the remainder of it was in a state of unhealthy inflammation: each of the tubercles was the centre of a distinct pneumonia: in the other lung there was tubercular infiltration in a cavity: the kidneys were softer and more vascular than in the normal state: the cellular issue of the swollen limb was infiltrated with a gelatinous fluid, and near the groin there was grumous blood in the vein and in the surrounding cellular structure. Dr. Law considers that the nature of diabetes may in some measure be illustrated by the accidental diseases which arise during its progress, and he is of opinion that two diseases are often confounded under the common name diabetes, one of which is a merely augmented amount of secretion, and is relieved by opium; the other, mellituria, in which there is a

depraved condition of the system, and the urine is altered in chemical qualities as well as increased in quantity, is best treated by the use of tonics. Although there were tubercles in the lungs the constitutional symptoms were more those of unhealthy pneumonia than of phthisis. This character of pneumonia, associated with phlebitis, indicated the return of the disease.—17th February, 1841.

3. *Pneumonia in the Lung of a Child*.—Dr. Corrigan said that it might be recollected, that in the early part of the year 1841 he had laid before the Society some specimens illustrative of a form of disease which was then prevalent, and which he had described under the name of *blue pneumonia*. [Vide Proceedings of 20th November and 11th December, 1841]. He had now to present a preparation exemplifying a disease, prevalent at this time—low fever combined with pneumonia. The specimen was the lung of a child æt. seven years, who was five days ill, and exhibited the symptoms of collapse, lips blue, surface cold, &c. It would be observed that the lower lobe was congested, and on cutting into it was tough, but not brittle, though it could be broken down by the finger; the transition had been immediate from the first to the third stage, without the intervention of the second stage. In connexion with his observations on this specimen, Dr. Corrigan proceeded to mention that two cases of the same character were at that time in the Whitworth Hospital: one a male, æt. 19, the other a female of the same age. Both had been taken ill on the same day (the 21st February), and both were admitted into hospital on the 24th: the symptoms in both are similar; the countenance is pale and sunken: the lips blue, and there is an approach to œdema; the skin feels pungent to the touch; the pulse feeble and very quick; respirations also quick; at the time of admission there were sonorous rales over all the chest, but the intensity of the disease has since become localized in the upper lobe in the right lung of one, and in the left of the other patient. In one there has been bloody expectoration, in the other the expectoration has been scanty and not viscid, like that of ordinary pneumonia.

4. *Tubercular Cavity in Lung, with Symptoms simulating Pneumothorax; Grey Hepatization of greater Part of both Lungs; Heart large; Ventricles dilated*.—Dr. O'Ferrall presented specimens illustrating a case of phthisis pulmonalis, attended with several circumstances of interest in pathology, as well as in diagnosis. The subject, a man æt. 24, an Italian, was admitted into St. Vincent's Hospital in a sinking state, and evidently past the hope of recovery: his countenance exhibited a cadaveric paleness, combined with a sublivid hue, indicative of the respiratory organs being engaged; his chest generally was dull on percussion, with the exception of two places where it was clear; one of these was the inferior portion of the left side, where the clearness became blended with the tympanitic sound of the stomach; the other clear region was on the right side, about two inches below the clavicle, where a spot equal in area to a crown piece (eighteen or twenty lines in diameter), was very resonant, and

to the hand applied here, while the patient was speaking, the vocal vibration was very distinct; the clavicular regions did not differ from each other in resonance; they were equally a little less dull than the rest; there were indications of a cavity, cavernous respiration, pectoriloquy of a metallic character, and, besides, a mucocrepitating rale throughout the dull part; and there were also some symptoms that might be referred to pneumothorax, *bourdonnement amphorique*, and sometimes a *tintement métallique* or a sound resembling a successive series of bubbles. The vocal vibration perceptible to the hand, was, however, considered diagnostic of a cavity. This patient lived in the hospital for a fortnight, during which time the physical signs presented but very slight variation. On examining the body after death, the upper part of the left lung, and all of the right, which yielded the dull sound, was found to be in a state of grey solidification, interspersed with tubercles; on the right side the lung was adherent, and there was tubercular deposition in the adhesions; the lower portion of the left lung was very emphysematous; the remaining portion was very solid, only there were two small cavities towards its apex; in the right lung, in the situation corresponding to the clear portion of that side of the chest, was a cavity about the size of an egg; its direction was from above, downwards, and from before backwards; anteriorly and posteriorly it approached the surface of the lung, within from a quarter to an eighth of an inch; this cavity was lined by a very dense membrane, and contained a little tubercular and some calcareous matter; two bronchial tubes opened into it, of which one larger than the other opened into its interior part. The pericardium was adherent to the lungs, and was covered with tubercular matter; the heart was of large size; the condition of its cavities indicated death by syncope, both the ventricles being full of blood; they were both dilated and thinned. It was remarkable that there had been no cardiac symptom, no evidence of enlargement of the heart during life. Some difficulty arose in this case from the want of any difference of resonance between the subclavicular regions. The diagnosis of a cavity could be formed from any of the phenomena, varying only as these indicated the fulness or the emptiness of the cavity. The emphysema of the left lung had prevented any observation of the signs of cardiac enlargement. The case was remarkable on account of the increased size of the heart, so contrary to what is usual in phthisis. The dilatation of the left ventricle, in such cases, is by Louis ascribed to a yielding of the muscular parietes to the force of the circulation; the enlargement of the right ventricle might, according to Andral, be accounted for by the impediment to the circulation in the lungs, produced by the tubercular deposition, but Dr. Evans (in his *Lectures on the Diseases of the Lungs*) asserts that it is not proportionate to the amount of the tubercular deposit.—1st March, 1845.

5. *Purulent Effusion into the left Pleura; Displacement of the Heart towards the right; Pneumothorax.*—Dr. Law presented recent speci-

mens illustrating a case of pneumothorax. The subject from whom they were derived, a young lad, æt. 14, had been admitted into Sir P. Dun's Hospital eight months ago, affected with fever. When he left the hospital he had a cough, and at his re-admission on the 1st of October the cough was greatly increased, and was attended with a frothy expectoration; his breathing was difficult, and he was in a state of extreme emaciation; the right side of the chest gave a clear sound, and the respiration was almost puerile; the anterior part of the left side also sounded clear; above the clavicle the respiratory murmur was feeble, and below it was heard an amphoric buzzing. When he sat up the inferior posterior region of the left side of the chest sounded dull; superiorly it became clear; the phenomena on percussion varied with the position of the patient. From the physical signs it was obvious that there was pneumothorax, and that there were no adhesions. What was most distressing to the patient was a painful sensation about the heart, which, being displaced, was felt strongly pulsating at the right side. With these symptoms, and occasional diarrhœa, the patient lingered till the 10th of December, when his death occurred. In the examination of the body the heart was found behind the sternum, and towards the right side of the mesial line; the left pleura contained two pints of greenish purulent matter obscuring the view of the lung, which was pressed towards the upper part of the chest; the air had communicated with the pleural sac by a very small perforation in the lung; when the lung was inflated, under water, by a tube inserted into the trachea, the opening into the pleura was detected; it was very minute, not larger than a pin hole, as Dr. Law demonstrated to the Society. The patient in this case had survived the occurrence of pneumothorax nine weeks, from which Dr. Law concluded, that either Dr. Houghton's opinion, as to cases of this kind (that is, that the period of survival after the fistula has been formed between the lungs and the pleural cavity is directly proportioned to the freedom of the communication, is not universally correct); or else that, in consequence of the extreme weakness of the patient in the present case, very little air had escaped into the pleura. Dr. Law then alluded to Dr. Stokes' observations on the enlargement of the ribs, which occurs in empyema, and which Dr. Law had observed also to take place in cartilage.—[*Vide* Proceedings of 30th March, 1844]. In the present case this hypertrophy had not occurred; the reason was, probably, the presence of air in the pleura, as in all the cases where it takes place, it is a compensating provision, enabling the lungs to resist the external atmospheric pressure analogous to the increased growth of the cranium, observed by Mr. R. W. Smith in case of atrophy, or imperfect development of the brain.—14th December, 1844.

THE NERVOUS SYSTEM.

1. *Tubercles in the Brain of a Lunatic subject to Epilepsy; Slight softening of the cerebral Substance surrounding them.*—Dr. Mollan pre-

sented a portion of the brain of a lunatic, a strong but not plethoric man, who died on the 13th of February in the Richmond Lunatic Asylum, of which he had been an inmate for three months previously. At the time of his admission he was evidently weak-minded, but his general health was good, and he had no symptoms of scrofula. The account given of him was that he had been insane at intervals during the preceding ten years, and had had epileptic fits, but they were not violent. A month after his admission he had an epileptic fit, which was preceded by a little excitement. He had another on the morning of the last day of his life; and at dinner, on the same day he had another: the keeper, who was in attendance, endeavoured to relieve his mouth from the food which he was about to swallow, and at the same time Dr. Mollan, who had left the institution but five minutes previously, was hastily recalled. Dr. Mollan returned, with Surgeon Blood, who succeeded in removing some food from the mouth, although he experienced great difficulty in introducing his finger, or an instrument. The patient, however, died without recovering from the fit, and without any symptom of paralysis. In the examination of the body, the pharynx, œsophagus, larynx, and trachea, were taken out together by Mr. Blood, and while he was in the act of lifting them out, two portions of boiled potato (which were now produced by Dr. M.) dropped out. Were these, then, the cause of death, or was their detention the result, merely, of the epileptic attack? Dr. Mollan was of opinion that these portions of food were within the œsophagus, and might easily have been swallowed; he had himself ascertained that the epiglottis was free; still the actual position of the bits of potato could only be conjectured. The question might be asked, whether tracheotomy would have been justifiable? The condition of the contents of the cranium was also carefully examined. The vessels on the surface of the brain were highly congested, and there was general hyperæmia of its substance. In the anterior lobe of the left hemisphere was found a small tubercle, round which the brain itself was slightly softened: another tubercle of similar appearance was found in the middle lobe of the same hemisphere. Dr. Mollan, after exhibiting these tubercles to the Society, observed, that bodies of that character are rarely met with in the brain, and that he had himself found but one instance of the kind before this, although he had made numerous examinations of the brains of lunatics. He proposed, as a subject for inquiry, whether these tubercles were the cause of the epilepsy in the present case, and whether they had existed during the entire of the period in which the symptoms of insanity had been recurring.—*1st March, 1845.*

2. *Hydrocephalus.*—Doctor Stokes exhibited the right hemisphere of the brain of a child between two and three years of age, who had died of hydrocephalus, attended with some unusual symptoms. A history of the case might be useful to any one engaged in the study of the combinations of disease. This child had been in a state of delicate health during the last year, with frequent derangements of the bowels. There was a sero-purulent discharge from one of the

ears; the child was very cheerful notwithstanding this, and was greatly attached to its father, for whom it showed an extreme affection. It was, therefore, with surprise that the family observed about a month ago, that it began to avoid the parent it had been so fond of; closer observation shewed that it did so, to avoid being played with, as any violent motion gave it pain. It was annoyed even by sounds; other changes of habits ensued; it sat at the fireside, with the head leaning on one hand, and the countenance expressive of melancholy. After a month had passed in this way, the child appeared to brighten up, to resume its cheerfulness, and it was singing on the day before its last illness, which commenced suddenly with convulsions, not preceded by vomiting, intolerance of light, or other indications of cerebral disease. The convulsions affected the right side only; they were violent and severe during eight hours, and when they subsided, the child was very weak and stupified; the right pupil was dilated: the little patient recovered so far as to be able to speak and to swallow, but on the day next but one from the commencement of the attack the convulsions returned. On recovery from this second paroxysm, there was still no paralysis: on the third accession of the convulsions, they were fatal. The body was examined by Mr. R. W. Smith. There was a considerable quantity of fluid about the base, and in the ventricles of the brain; the surface of the brain was highly congested; in the pia mater, on the right hemisphere, there were two unencircumscribed apoplectic effusions; many of the veins, near the longitudinal sinus, contained firm coagula.

This case, then, exhibits a complication of hydrocephalus, with the usual symptoms, along with this condition of the meninges. The connexion of capillary apoplexy with cerebral phlebitis has been remarked by Cruveilhier. In the present case were the veins inflamed? Are the coagula, which they contained, evidence that inflammation had existed?—*8th April, 1843.*

3. *Scrofulous Tumour in right Lobe of Cerebellum.*—Dr. Greene presented two specimens to illustrate the small amount of lesion which is often to be found in the brain, in cases where the symptoms during life had been intense. The two cases to which the specimens belonged occurred in the Hardwicke Hospital.

The subject in the first case, a boy, was admitted labouring under fever; he had pain in the forehead, and constant vomiting; to these succeeded screaming, grinding of the teeth, dilated pupils, strabismus, and at last stupor, but neither convulsions nor paralysis; towards the close of the disease the left leg and arm were spasmodically contracted. This patient had increased appetite, and was always eager for food; his intelligence was uninjured. The treatment was directed to relieve the head, but without success. He died comatose. In the examination of the body there was observed some degree of vascularity and opacity of the meninges of the right lobe of the cerebellum. At this point, on the external margin of that lobe, there was observed a scrofulous tumour, about five or six lines in diameter. This, small as it was, had irritated the

meninges at that place, and was the cause of the severe symptoms which ensued, exemplifying the consequences resulting from the existence within any organ of a permanent source of irritation, as Dr. Greene had also observed at the last meeting. [*Vide supra*, 18th January, 1845]. The preparation shewed the tumour *in situ* attached to a portion of the cerebellum.

4. *Capsule containing gritty Matter in Corpus Callosum.*—Dr. Greene then shewed a small cartilaginous capsule, enclosing gritty matter, taken from the corpus callosum of a girl *æt.* 14, who had been affected with fever, from which she recovered, but not completely. She was attacked with excruciating pain in the head, and, after three days, with vomiting; the pain intermitted, intellect failed, strabismus and grinding of the teeth ensued. This attack was singularly resistant to treatment; even salivation produced no relief. The patient died, but without being paralysed. On examining the head, there was detected only some opacity of the arachnoid in the pentangular space, and opposite the transverse fissure of the brain, and some effusion at the base, and within the right ventricle. In the corpus callosum was found the minute capsule now produced.—*25th January, 1845.*

5. *Case of fatal Hæmorrhage into the Substance of the Cerebellum, in the Neighbourhood of the Pons Varolii; thickened Condition and yellow Colour of the Arteries of the Brain.*—Dr. Adams exhibited a number of recent preparations taken from a case of which he gave the following account:—

History of the Case.—Miss E., an unmarried lady, *æt.* 53, of active habits and appearance, enjoyed excellent health all her life until about two years ago, when she first felt vague and uneasy sensations about the head. Her occupation compelling her to remain for many successive hours daily in a school-room, teaching young children, was not calculated to make her better. In the evening she often felt her head so hot, that she would walk out into the garden of the house she resided in, having taken all her head dress off. She was conscious that her memory was occasionally defective, she also complained that sometimes she could not find words to express her ideas; “flashes of mental confusion” she said, would suddenly come over her, and frighten her, and compel her to leave the room in which her family were collected, that she might recover herself, and collect her ideas. Her spirits were not in general low, yet she had very generally present to her the fear of falling down in a state of insensibility. She got up early every day, and went out to attend to her school, and repeatedly, on leaving the house, told her servant to remember what she said, that she should some day be found in the street in a state of insensibility.

Dr. A. learned from her servant and family, that her appetite was large, that she attended sufficiently to the state of her bowels, but that she always slept heavily, and during sleep habitually snored much; that invariably she slept for an hour or two after dinner, and that even in the day-time, if not occupied by her

business, she would retire to a sofa, and sleep for an hour or more at a time; that she frequently complained of headach, and had occasional attacks of vomiting, but that she never had any complaint in her chest, oppression of breathing, or palpitation of the heart; that she was remarkably active in going up and down stairs, and walked several miles every day. The catamenia had ceased gradually; in the last two years there had been no appearance of them. It was just after the natural disappearance of the catamenial discharge that she first experienced uneasiness in the head.

Dr. A. was never sent for to visit Miss E., until the fatal attack of insensibility came on; the patient, unaccompanied by any of her family, called upon him as she was passing into town, and consulted him about three or four times in two years.

Miss E., although impressed with the precariousness of her state of health, and the danger of her case, seldom sought medical advice, and when she was told how her symptoms should be treated, very *partially obeyed* the solemn injunctions she received.

In the above summary of symptoms were to be seen very sufficient indication of an almost habitual state of vascular congestion of the brain; and the instinctive feeling which the patient so frequently recurred to, that she would die suddenly, was also calculated to impress a medical man with a just idea of the danger of the case, and to suggest to him the propriety of giving very explicit directions for her guidance. She was told that her diet should be regulated as to quantity, and that her food should be of the simplest kind; that she should dine early, and take no wine, and on no account any longer yield to the habit she had acquired of sleeping except in her bed; that if possible she should adopt some other mode of life than that of teaching for so many hours a day; that her bowels should be daily freed; that her feet should be kept warm, her head cool, and that for this purpose her hair (which was abundant), should be cut close, that she should use frequently cooling applications to her scalp; that she should occasionally lose blood from the neck by the application of the scarificator and cupping glasses, and have a seton inserted in the neck.

Dr. A. could not prevail upon her to give up her occupation, or to follow his advice, *except very partially*; she applied leeches and occasionally small blisters, but would not hear of the seton, or of any other measure which would at all interfere with her daily occupation, by which she maintained herself.

On the morning of the 13th March, 1844, Dr. A. was called to see her; he found her perfectly insensible to all objects around her; she could not swallow, yet she occasionally vomited; he could not observe any paralysis, but there were slight passing convulsions of the limbs; her breathing was stertorous and laboured; her face pale; her pulse small and weak; her skin cold; she had occasional vomiting; she could not swallow; the pupil seemed neither contracted nor dilated, but it did not answer to the light, and seemed fixed. From the knowledge Dr. A. had of the previous premonitory symptoms, Dr. A. had but little hopes of her recovery, and he gave to

the friends his prognosis accordingly. The convulsions, which were slight, principally engaged the limbs; the left side seemed most affected. Dr. Adams learned that Miss E. had risen, as was her usual habit, at six o'clock on the morning of the attack, and had partially dressed herself, when she was discovered by her maid servant sitting on the floor in a state of insensibility. The symptoms above mentioned did not vary much during the thirty-four hours she survived the apoplectic seizure, except that on the morning of the 14th March, on Dr. A.'s visit, some reaction had taken place; her face became coloured, her pulse rose somewhat, and the surface became warmer.

Treatment after seizure.—As she seemed pale and her pulse beat feebly Dr. A. relied on local depletion, leeching, and cold lotions to the head. She could not swallow, and consequently no medicine was given; some calomel was applied to the tongue, an enema was administered, and the urine was drawn off by the catheter. On the following morning the whole surface became red and the pulse rose; Dr. A. took some blood from her arm, but these signs of an attempt at reaction did not long continue, and she died at five o'clock, on the 14th March.

Post Mortem Examination of the Head.—The vessels on the external surface of the dura mater, were in a state of considerable congestion. A section of the cerebral structure exhibited a preternatural number of red points, and the surface of the section presented a watery appearance. There was some fluid also found in the lateral ventricles; all the arteries of the brain contained dark-coloured blood; the coats of the cerebral arteries were somewhat thickened, and were of a *yellow colour*, in various parts and patches; a large clot of blood was found in the cerebellum, very near that part where the pons varolii and crura cerebri join superiorly and laterally; here the upper portion of the crura, and neighbouring part of the cerebellum, had undergone some laceration of its structure; into which portion an infiltration of blood had occurred: no artery could be traced as having been the source of the bleeding.

Observations.—In the relation of this case, perhaps too much stress has been laid upon the presentiment the patient had, as to what should be the immediate cause and mode of her death. Many persons have had similar feelings, without giving the same unhappy proof of their having been true harbingers of so bad a result. On the other hand, the precision with which these forewarnings were verified, even in this case, is rather startling.

6. *Carcinomatous Growth from the Dura Mater at the Base of the Brain; Ramollissement of anterior Lobes of the Cerebrum.*—Dr. Banks presented a specimen of carcinomatous tumour found within the cranium. The subject, a man aged 34, was a patient in the Whitworth Hospital, and was remarkably stupid. The account given by him was, that six months ago he became affected with pain in his head, and that this continued for three months. That he had then an epileptic fit, which was succeeded by freedom from pain for a month, and that afterwards the pain returned. The appearance of the

man was heavy, his constitution was evidently strumous, he had red hair, thick lips, and pallid cold skin; his pulse was only fifty-eight; he had no paralysis; he lay tossing about his head, and often gasping it with his hands. It was ascertained that his sister was subject to epileptic fits, but this patient had but the one seizure. He died suddenly, and his death was not preceded by coma, nor did he lose intellect or sensation. On examining the contents of the cranium, the anterior lobes of the cerebrum were found to be softened, and of a yellowish colour. The arachnoid was slightly thickened. At the base of the brain a tumour was found growing from the dura mater covering the cribriform plate of the ethmoid bone. This tumour which was of firm consistence, pressed upwards into the cerebrum. Its structure consisted of fibres, enclosing between them granules of two forms, which had been recognised by Drs. Houston and Aldridge, under the microscope, as possessing the characters of malignant disease. [Vide Proceedings of 26th April, 1844]. Dr. Banks considered this case deserving of notice on account of the paucity of the symptoms, and the early age of the patient.—*11th January, 1845.*

GENITO-URINARY SYSTEM.

1. *Calculus impacted in the left Ureter; Left Kidney converted into an enormous Sac, filled with Pus.*—Dr. Law presented a specimen of sacculated kidney, in which there remained scarcely a vestige of the original structure of the gland, all that could be traced being some part of calices enormously distended. The kidney had become a large membranous sac, capable of containing two quarts of fluid; its contents were purulent; there was a calculus impacted in the ureter, which, from that point up to the kidney, was dilated into a pouch. The subject from which this specimen was derived, was a man aged 45. A year before his admission into hospital, he began to feel pain in the left lumbar region, which, at first, was not severe; but from this period his health declined, and he frequently passed purulent matter in his urine. He was successively a patient at Jervis-street and St. Vincent's Hospitals; in the latter he was under the care of Dr. Bellingham, where he was seen, for the first time, by Dr. Law: he was then labouring under hectic, and a remarkable fulness, with distinct fluctuation, could be felt in the left side of the abdomen posteriorly. Shortly after this, in consequence of some alterations which were in progress in the ward in which he lay, it was thought that he might, with advantage, be removed to another situation, and he was then admitted into Sir Patrick Dun's Hospital. After his removal, he appeared for some time to improve, and the symptoms of hectic disappeared. It was observed that the urine secreted during the day was still purulent, but that that formed during the night was clear, with only a slight quantity of sediment deposited from it. He occasionally passed pure pus, and sometimes pus of a greenish tinge, like the fluid of empyema. He appeared to be better in proportion to the quantity of pus discharged; the amendment observed after his removal to Sir Patrick Dun's was but transient; he became gradually

more and more reduced in strength; his appetite failed, and the bowels became very irritable; pain was produced by pressure on the lumbar region, yet he appeared easiest when lying on his back; he died of an attack of cholera, at a time when Dr. Law was absent from Dublin. The examination of the body was carefully made, and the present specimen preserved for him by Mr. Nichols, a pupil at the hospital. When the abdomen was opened, it was observed that the distended left kidney had pushed aside all the viscera. The kidney of the opposite side was healthy, only more vascular than ordinary. During the examination of the abdomen, a fœtor, resembling that of phosphuretted hydrogen, was disengaged in abundance, and this was remarkably persistent, remaining perceptible in the room where the examination was made, long after the removal of the body. There was no stricture of the urethra in this case, and Dr. Law thought that the impaction of the calculus in the ureter had been the indirect cause of the disorganization of the kidney by causing a remora of the urine in the organ, and thus effecting the absorption of the proper structure of the viscera in a manner analogous to that in which removal of the proper structure of the brain is produced in chronic hydrocephalus. Dr. Law exhibited a plate of Cruveilhier's, in which was represented a case closely resembling this, only that in the present specimen the characters were even more highly marked. Dr. Law had had the urine submitted to chemical analysis, by Dr. Aldridge, and ascertained that the portion passed at night was sp. gr. 1.008, and deposited $\frac{1}{36}$ of its volume of pus, while that passed in the day was sp. gr. 1.014, and deposited $\frac{1}{12}$ of its volume of pus.—30th of November, 1844.

2. *Rupture of the Bladder by external Injury; Extravasation of Urine into Peritoneum circumscribed by Adhesions.*—Mr. Hamilton presented a recent specimen of bladder ruptured by external injury, of which he gave the history. The subject of the case, a man named Mac Guinness, having quarrelled with another man in a public house, at about ten o'clock on the evening of Sunday, the 30th ult., they went out into the street to fight, when both fell, deceased undermost; he got up, and complained of intense pain in the belly, lay down, and was carried home; the pain continued through the night, and there was also a frequent sense of micturition, but without the power of voiding any water. At nine o'clock on Monday morning a catheter was introduced without difficulty, and about three pints of urine tinged with blood drawn off; he was bled from the arm. At five o'clock on Tuesday, 2nd December, he was admitted into the Richmond Hospital. Mr. Green, the resident pupil, observed that he was then in a state of great debility, his countenance anxious, his belly swollen and painful; there was a fulness at the lower part of the belly, and the urine was retained. The catheter was introduced, and perfectly natural urine was drawn off. The abdomen was leeches, and a terebinthinate enema was thrown up; a large alvine evacuation soon followed, and the patient obtained some, although but temporary, relief. Between midnight and one o'clock in the morning, the catheter was again in-

troduced, and urine quite healthy in appearance was drawn off; in the course of the night vomiting set in. At six in the morning he was evidently moribund; his pulse was 150; the surface of the body cold; and he was vomiting a pale yellow, watery fluid. At ten on the morning of the 3rd December he was for the first time seen by Mr. Hamilton; this was shortly before he expired, and the swelling of the abdomen had by this time subsided. As the case was to be the subject of an inquiry before the coroner, the examination of the body was very carefully performed; the intestines were found glued together by recently effused lymph; the bladder was collapsed, and there was a large rent in its fundus; the intestines, agglutinated together, formed a sort of sac, which limited the extent to which the urine could be effused into the peritoneum. Mr. Hamilton observes that this limitation of the urine within a *cul de sac*, thus formed, has been often observed in cases of ruptured bladder. Mr. Hamilton here shewed that a director passed from the urethra into the bladder readily slipped through the rent in the fundus; this position of the rent, immediately opposite to the entrance of the urethra, explains the facility with which the catheter had passed into the collection of urine effused outside the bladder. The extent of the rent was greatest in the peritoneal coat; in the other tissues of the walls of the bladder some degree of contraction had occurred. Mr. Hamilton concluded his communication by referring to the papers on rupture of the bladder by Drs. Cusack and Harrison, which he regarded as the most accurate and complete yet published. Dr. Harrison accounts for the fact that the rupture always occurs in the superior fundus, by the circumstance of this accident occurring only when the bladder is distended with urine, in which case it rises into the hypogastrium above the pubis, and thus becomes subject to be compressed against the sacro-lumbar prominence of the spine.—*6th December, 1845.*

3. *Fœtus, with left Arm partly amputated by the Funis coiled round it.*—Dr. Beatty exhibited a preparation of a fœtus, of between the fifth and sixth months of utero-gestation, which he adduced in confirmation of the fact several years ago described by Dr. Montgomery, the spontaneous amputation of the limbs before birth. This specimen illustrates that process, and may help to explain why the fœtus is so often found maimed before it arrives at its full period. The left arm in this instance had been enveloped in a coil of the umbilical cord, which had so tightly constricted it as to cause the absorption of all the tissues with which it was in contact; this had occurred about the middle of the humerus, and, the soft parts being removed, only the bone preserved the continuity of the limb.—*6th December, 1845.*

4. *Ovarian Tumour.*—Dr. Law presented an ovarian tumour, weighing twenty-seven pounds, taken from the body of a woman, æt. 47, who was a patient in Sir Patrick Dun's Hospital for seven months before her death. The account which she gave at her admission was, that two years and a half previously she had been attacked by profuse hæmorrhage from the uterus, from which she continued to suffer

during two years. At the end of that period she remarked a fulness of the abdomen, which gradually increased during the next three months. At the time of her admission the abdomen was much enlarged: on examining it carefully, an irregularly shaped tumour was detected within it; it had commenced below, and grown upwards; it evidently consisted of several smaller tumours, of various degrees of consistency, some of which were fluctuating. During her long period in the hospital she suffered very little derangement of any function, except that of digestion. She occasionally had strangury, and sometimes experienced pain in the tumour, from which she was relieved by the application of leeches. As the tumour continued increasing in size, the respiration became difficult, diarrhœa came on, and great emaciation; but she had little constitutional suffering. In the examination after death, the tumour, on opening the abdomen, was found in apposition with its parietes, anteriorly, concealing from view all the viscera, except the stomach and the margin of the liver. It was attached to the uterus, and to the parietes of the abdomen. The right ovary was lost in the tumour, a section of which disclosed a multilocular structure. The contents of its several cavities were various; in some there was a straw-coloured serum, in others a dark brown fluid; in some the fluid contents were interspersed with floculi of lymph, in others there were hydatids, and many were intersected by firm bands, crossing from side to side of their interior. In the left ovary were found some serous cysts, and probably such had been the origin of the great tumour. The uterus was hard and scirrhus. An attempt to have relieved the patient by extirpating the tumour would have been unsuccessful, as it was connected with malignant disease of the uterus itself.—13th January, 1844.

5. *Pelvic Abscess bursting into the Peritonæum; Fungoid Ulceration of the Cervix and Os Uteri.*—Dr. O'Ferrall said that the specimens which he then laid before the Society were taken from the body of a female æt. 42, who was admitted into St. Vincent's Hospital, labouring under malignant ulcer of the uterus. She was married, and had borne several children; had been twelve months ill; she had purulent discharge from the vagina, and suffered much from the peculiar pain which characterizes organic disease of the uterus. Dr. O'Ferrall, when he examined her *per vaginam*, detected ulceration with growths from the os tincæ; these projected so as to occupy a great part of the vagina; the abdomen was tender to pressure, and there was a large, fixed, hypogastric tumour, which extended into both iliac regions, especially to the left, part of which was resonant on being percussed. One morning, while Dr. O'Ferrall was in the hospital, she was suddenly seized with symptoms of collapse, threatening immediate dissolution; she became very pale and cold, the pupils dilated; she talked at random and incoherently, answered questions slowly and with difficulty; she complained of no pain, but was in a state of constant jactitation; the pulse, which had been quick, although weak, was now imperceptible at the wrist, but could be felt in the arm. This sudden attack was at first thought to be the effect of internal hæmorrhage, but there was none. The tumour was

examined and a fluctuation could be felt towards its centre in a situation corresponding to the bladder; as no urine had been discharged during twelve hours, the catheter was introduced and the bladder emptied; the tumour now appeared smaller than previously. The treatment consisted of a large dose of opium, followed by stimulants, and then the opium repeated: reaction then set in, and she became enabled to describe her state; she was still free from pain. After some hours in this condition, collapse again occurred, and she died thirty-six hours after the first appearance of the symptoms of sinking. On examining the body after death pus was observed in the iliac fossa and in the pelvis: it was pure pus, without any flocculi, and existed in considerable quantity. The abscess from which it had proceeded was situated between the uterus and the back of the pelvis; the omentum was adherent to the abscess in two places, and the rectum, which was displaced by it towards the right side, formed that part of the tumour which had been observed to be resonant to percussion. By pressing on the tumour the pus welled up and indicated the situation of the abscess, and the point at which it had ruptured, which was between the uterus and the sigmoid flexure of the colon; the abscess then discharged itself into the peritoneum, but the serous surface was not vascular, nor had any deposition taken place on it; the rectum was connected to the abscess both superiorly and on the right side; the uterus was enlarged: its body was hypertrophied, and the cervix and os uteri were also enlarged, and were the seat of deposition in their substance; the os uteri was widened, indurated, and had fungous ulcerated growths proceeding from it into the vagina, but the uterine cavity exhibited no diseased appearance; the bladder also was quite healthy. The points of interest to be remarked in this case are, (1) its being an instance of chronic disease of the uterus terminating fatally by the formation of a pelvic abscess, a mode of termination hitherto unnoticed as the result of chronic diseases of the uterus, although often produced by acute diseases of that organ. (2) It adds something to the history of pelvic abscesses and their sudden rupture, exhibiting symptoms different from those of perforation of the hollow viscera. (3) It presents an example of an abdominal tumour formed by normal parts displaced by an abscess in the pelvic cavity.—15th February, 1845.

MISCELLANEOUS COMMUNICATIONS.

1. *Disease of the synovial Membrane of the Knee Joint, consequent on an Injury.*—Dr. Hutton, in the absence of Dr. Mac Donnell, presented a recent specimen of disease of the knee joint. The subject from whom it had been removed by amputation, a man æt. 21, gave this history of his complaint: four months ago, on leaping from a wall about six feet high, he fell and hurt his knee, but so slightly, that he walked about in a few minutes afterwards, and continued at his usual employment; in a month afterwards he felt pain in his knee, but it was not very severe, nor was he disabled

from working, until after two or three weeks more when the joint had become swollen, and the pain more intense. He was admitted into the Richmond Hospital, in a state of hectic, with an anxious countenance, quick pulse, colliquative sweats, and diarrhœa. Notwithstanding the remedial means which were employed, in about three months he had become so exhausted that amputation was rendered necessary. On examining the removed limb it was found that the synovial membrane was chiefly affected; it was thickened, and had large masses of unorganised lymph upon its surface within the joint; this lymph had the curdy consistence of scrofulous matter. The cartilages were but little engaged in the disease; those of the femur were nearly perfect; the interarticular were a little eroded towards their internal margin. The bones were in some places softened so that a scalpel could be run into them to some depth, but this softening was different from that which results from the scrofulous deposit in the cancellated structure of bones. There were some abscesses in the cellular substance about the joint. Since the operation, the pulse has not become less frequent, but the diarrhœa has stopped, the sweats are diminished, the appetite has improved, and the patient sleeps well. Part of the stump has healed by the first intention; another part has continued inactive, and is only now beginning to secrete healthy matter. A small abscess has appeared at the bottom of the sternum.—*15th February, 1845.*

2. *Pendulous Tumour.*—Dr. O'Ferrall presented a specimen of a pendulous tumour, of a species not previously described by authors, as far as he had been able to ascertain, but of which he has met with four cases. The present occurred in a female æt. 20; it was attached by a very small pedicle to the back of the neck near the roots of the hair. It appeared to have commenced but four months before the operation for its removal, which was easily effected. It consisted of two lobes, covered with a fetid discharge, which was so acrid as to excoriate the neighbouring skin, and presented on its surface some small patches of slough. On first view it appeared to arise from a broad base that it slightly overhung; but by separating the lobes it was discovered to be only connected to the skin by a very short pedicle, of the diameter of a crow quill, formed by the integuments, of which it was a prolongation, and presenting no appearance different from healthy integument, except a slightly darker colour. From the pedicle the integuments spread out over the tumour, on which they were lost. The remainder of the tumour was composed of a growth from the skin, which had given way at its most prominent part. After the operation the spot healed rapidly. A section of the tumour had been examined microscopically by Dr. Aldridge, who found it to consist only of cellular tissue, slightly hypertrophied, and some gelatiniform matter.

Dr. O'Ferrall is of opinion that this species of tumour is not malignant; it does not return after operation; it is easily removed, and its pedicle consists of integument, still healthy. He does not know of any notice of it by authors, unless Velpeau should be con-

sidered to have met with an instance of it in a pendulous tumour near the shoulder, which he observed several years ago, and which he distinguishes from molluscum. But there is no notice of it in any of the writers on cutaneous diseases, nor has it been described by Warren, in his recent work on tumours. —[*Vide infra*, Proceedings of 19th April, 1845.]—1st March, 1845.

3. *Encephaloid Tumour removed from the Thigh.*—Dr. Fleming said that, in the absence of Mr. Cusack, he had to exhibit a specimen of malignant disease. The subject from whom it had been removed, a married female, of intemperate habits, aged between fifty and sixty years, had first perceived the existence of a subcutaneous tumour at the lower and inner part of the thigh, about twelve or fourteen years ago. It was small, freely moveable under the integuments, and was not painful. It remained in this condition for ten years, when, in consequence of some accidental injury, it began to increase in size, and became adherent to the integuments; it was now painful to pressure, and six weeks ago it ulcerated; a fungoid mass was produced, and was often a source of hæmorrhage. The integument surrounding it was of a copper colour. The diseased mass could be raised from the subjacent parts; there were no large superficial vessels, and its removal was therefore decided on by Mr. Cusack. It lay in the situation of the saphena vein, yet that vessel was not met with in the operation. An examination of the tumour shewed it to be certainly malignant, consisting of encephaloid matter included in a cyst of great tenuity, which could not be detached from its contents, but was very easily separable from the fat in which it was imbedded. From this looseness of its connexions to the surrounding parts, the favourable prognosis has been formed that the malignant disease will not return. This opinion Dr. Fleming supported by referring to a case in which he had himself operated, along with the late Dr. A. Colles, about twelve or fourteen years ago: the subject was a lady between sixty and seventy years of age: the malignant structure which resembled the present specimen, was situated on the breast, imbedded, not in fat, but in the mammary gland itself, and was easily extirpated without removing the nipple. The patient had been seen both by Sir P. Crampton and Dr. A. Colles, and the prognosis as to the result was not favourable, but the disease has not returned, and the patient still survives. Dr. Fleming is of opinion, that in both cases there was at first but a simple encysted tumour, which subsequently passed into the malignant state.—8th February, 1845.

4. *Delirium Tremens; Venous Congestion of the Brain and its Meninges; Typhoid Inflammation, and purulent Infiltration of the left Lung.*—Dr. Stokes said the specimens then laid on the table were the viscera of a man who died of delirium tremens, or at least while labouring under the group of symptoms designated by that name. He had recently committed two excessive debauches within a very short period; his illness commenced immediately after the last of these, which was on Sunday fortnight. He had felt somewhat unwell before that day, with pain in the left side; this became more severe

after Sunday, and there was added vertigo, and general debility, for which he was treated by bleeding, both general and local, and was relieved. When he came into hospital he was extremely low and depressed; his symptoms resembled those of typhus fever. When the chest was examined on the 6th of April, it sounded clear anteriorly, but in the posterior part of the left lung the signs of pneumonia were detected. The action of the heart was regular; the pulse not greater than natural, and there was no abnormal sound; carbonate of ammonia was administered, and he was cupped on the side affected. On the following day the lung was found relieved, and then the symptoms of the delirium tremens appeared. What occurred here exactly agreed with Dr. Stokes' experience of several other cases in which he had observed the effect of some severe local inflammation in retarding the appearance of delirium tremens. In the present case the delirium was violent, and of a ferocious character; the state of the lung remained from this time stationary, or it rather retrograded a little. The debility of the patient increased; his countenance became hippocratic, and bed sores began to be formed. For the last three days of his life he got twenty-four ounces of wine daily, and also porter and diffusible stimuli every day: he spoke rationally on the day before his death. In the examination of the body after death, the veins and sinuses within the cranium were found universally congested, but there were no signs of active inflammation. The substance of the brain was slightly congested; there was no effusion into the ventricles, on the contrary, they were rather dry. On opening the thorax, it was observed that part of the left lung was very dark-coloured; there were several colours distinguishable in different parts of this lung; a portion, which was of a very deep tint, was highly congested, and was friable; in other parts there was a yellowish or grey colour, and there, a purulent infiltration pervaded the pulmonary tissue; the surface of a section was not so granular as it would be in the normal plastic inflammation; in this case the inflammation was typhoid. There was nothing else remarkable in the lungs. In the lower part of the œsophagus the epithelium was softened, and in some spots was abraded. The intestines were very carefully examined, but no trace of disease could be found in them, except that the large intestine was congested in a degree analogous to that of the lung; the peritoneal surfaces were in several places agglutinated together, though little or no lymph had been thrown out. The stomach exhibited no vascularity, notwithstanding the powerful stimuli which had been used during the last few days of the patient's life. Dr. Stokes proceeded to observe that there are three varieties of delirium tremens, all of which have fortunately become rare since the rapid progress of temperance in this country. The varieties he had noted were these:—The simple delirium tremens, an essentially neurotic disease, which is cured by opium; delirium tremens, complicated with typhus fever; and that form consisting of a group of co-existing inflammations, not sthenic, but diffuse or erysipelatous, *e.g.* cerebritis and meningitis, pericarditis and pneumonia, bronchitis, gas-

tro-enteritis, and peritonitis, which here have co-existed in this form in the same individual. In such cases the blood is altered in its characters, and the whole system becomes typhoid.

The present case belongs to the last and the most complicated form, as might be inferred from the description already given; and the specimens on the table shew the condition of the brain and the lung in the typhoid state of disease, with purulent infiltration resulting from it.—15th April, 1843.

MEDICAL MISCELLANY.

Case of Carotid Aneurism, in which Galvanism was applied to the Blood in the Sac by means of Acupuncture. By JOHN HAMILTON, M.R.I.A., Surgeon to the Richmond Hospital.—The relation of the following case may prove serviceable to those who may try the galvano-puncture in cases of aneurism. In the first trials of a new remedy, every case should be faithfully narrated, the unsuccessful as well as the successful, that the causes of failure in the first may be clearly recognised and avoided.

James Holmes, aged 43, admitted into the Richmond Hospital March 26, 1846. He had formerly served as a soldier in the East Indies, and was, at the end of eleven years, sent home on account of bad health. When admitted, he presented the appearance of a man whose constitution had been completely broken down (as, in fact, it was) by climate, drinking, and the effects of the syphilitic poison. He had two soft nodes, one on the sternum, the other over one of the ribs. There was strumous enlargement of the lymphatic glands on the left side of the neck, with two or three fistulous openings from which thin pus flowed. He had diarrhoea, cough, headach, and restless nights; but the most distressing symptom of all was nearly constant vomiting of a greenish-yellow fluid, and of almost every thing he took. His complexion was of a pale straw colour, and he was so weak that he could scarcely stand. He had formerly been twice in hospital under my care, once for a large abscess in the buttock, and once for a suppurating node on the parietal bone, a large portion of the outer table of which had exfoliated, and been removed.

Examination of the chest detected chronic bronchitis, and on the right side, where he complained of pain, there was evidence of circumscribed effusion to a small extent, with dulness on percussion, and absence of respiration, not influenced by change of position. No enlargement of the liver was discovered, nor did sufficient evidence of organic disease present itself elsewhere, but the existence of Bright's disease of the kidneys was suspected. He had occasionally slight œdema of the face, about the eye-lids. Under treatment, the nodes disappeared, the diarrhoea ceased, the pain and effusion in the right side of the chest were removed, and his general aspect im-

proved, but all the usual remedies failed in permanently checking the vomiting; creosote seemed to have some influence, but only temporary. It was very hard to point out the cause of this obstinate vomiting; there was no sign of disease of the brain; it had not the character of that attending scirrhus of the pylorus, nor was there pain or tenderness in the epigastrium. About a month after admission the lymphatic glands in the neck increased in size, and were painful. His voice, before of natural strength and tone, became weak and husky; but it was not till he had been in hospital six weeks that he was discovered to have an aneurism of the carotid artery.

May 7th. He complained of having suffered from great throbbing in the glandular swelling in the left side of the neck. Beside the more superficial glandular enlargement with its fistulous openings, a deeper-seated tumour could be felt, soft, and containing fluid, but having a well-marked diastolic pulsation: it was partly on the inside of, and partly covered by, the sterno mastoid muscle. Pressure on it impeded respiration; pressure on the carotid below it could not be borne, both on account of the pain and its inducing vomiting; it could not, therefore, be tried long enough to empty the sac. There was no *bruit de soufflet*. The existence of the aneurism had not been observed before, probably on account of its having been, while small, masked by the suppurating glandular enlargement over it; besides, he usually kept a poultice on the part, and, making no complaint, the whole attention was absorbed in the other more obtrusive and serious complaints. As the aneurism got larger, the glands got less, from both which causes its existence became more apparent. It was not painful or tender, but the pulsation distressed him, and the pressure on the side of the larynx produced cough of a wheezing, laryngeal character, and reduced the voice nearly to a whisper.

This man, with such a constitution, was obviously no subject for any operation with the knife; in this my colleagues and myself fully agreed: the cure by pressure was, in such a situation, of course, out of the question. Some months previously I had seen in one of the French journals an account of the application of galvanism and acupuncture in curing an aneurism, by coagulating the blood in the sac. I then thought the plan sufficiently feasible to determine me to try it in the first eligible case.

The present case, cut off from the usual resources of art, was clearly one in which even a doubtful remedy might be fairly tried. I began to form the opinion, too, that, in the absence of any more obvious cause, the pressure of the aneurism on the par vagum might account for the obstinate vomiting.

May 15th. In the presence of my colleagues, Drs. Hutton, Macdonnell, and Macdowell, and Mr. Stapleton, of Jervis-street Hospital, I proceeded to apply the galvanism to the tumour. The state of the aneurism previous to the operation was as follows: it was about the size of a hen's egg, but rather flat, of somewhat irre-

gular shape, with a round, smooth projection on the inside, where the walls of the sac appeared thinnest. The centre of the tumour was on a level with the cricoid cartilage, the sterno-mastoid muscle was stretched over it; the pulsation was strong, but no *bruit de soufflet* was audible.

I passed a thin gold needle into the outside of the sac, till it had penetrated to about an inch; the same was then done on the inside, the thin, projecting part of the aneurism being avoided: the needles could be made to touch in the centre. I used needles of gold, as better coagulators of blood than those of steel; by the advice of Mr. Fagan, the electrician to the hospital, who was kind enough to regulate the galvanic battery for me, they were isolated every where, except at the point, by a varnish of shell-lac. The battery used was one of Smee's, consisting of twelve zinc and silver plates. The action was given very gradually, by, at first, only immersing the plates to two or three inches. When the whole force of the battery was used, it only caused moderate pain, and produced slight contraction of the muscles: he compared the pain to the prick of a leech. At the end of fifteen minutes the coagulation of the blood was not such as to cause any remarkable change in the tumour, but it appeared to beat with less force at the outside. After this the pulsation became evidently less, the tumour firmer and larger, and he began to complain of uneasy, weighty sensations, and very severe pain, which he compared to his throat being held fast by the teeth of a dog. He said he suffered much from pain in the left side of the forehead, with lightness, and other unpleasant feelings. The sensations in the tumour were very distressing, and those in the head, from their violence, assumed rather an alarming character; but the most serious symptom was the great increase of the swelling as coagulation took place, chiefly in a direction upwards and downwards, in the course of the sterno-mastoid muscle: this seemed the chief cause of the pain and the tight feel in the throat.

At the end of twenty-five minutes complete coagulation had taken place in the aneurism, which felt solid, and pulsation was imperceptible; for these reasons the galvanism was discontinued. The discontinuance might have been demanded also for another reason, that round the positive needle, on the outside, the parts in immediate contact were observed to vesicate, and then to turn quite black for the size of a spangle, the vitality being destroyed by the galvanic action: when this needle was withdrawn there was a slight flow of blood, but none from the puncture of the negative needle.

So far, therefore, as the solidifying of the blood in the aneurism, the operation had succeeded, but not without considerable grounds of uneasiness. The unpleasant feel in the head continued, with the pain over the left eye-brow; the pupil was observed to be contracted, and there was *loss of sight in the left eye*. He was restless, and tossed about, complaining much of the tightness of his

throat; he had twitches in the lower extremities, and complained of being chilly, and the pulse fell from 74 to 60. With respect to the tumour itself, the sudden increase was sufficiently alarming, as it was three or four times larger at the termination of the application of the galvanism. The increase, as observed before, took place chiefly upwards and downwards in the course of the muscle; it reached from about one inch above the clavicle to an inch and a half below the ear. The tumour was also more prominent. From what did this increase arise?

May 16th. Has passed a sleepless night, and frequently vomited the iced brandy and water which he had been ordered. He had pain both in the head and in the tumour, and was unwilling to have the latter touched, it was so sore. Reaction had now set in, and the pulse was 86. The tumour was quite solid in every part, except at the inside, where it was softer, and where, I thought, I felt pulsation, but it was too indistinct to be certain. The whole solid body of the tumour was lifted up by each pulsation of the trunk of the carotid beneath it. He did not suffer pain in either the head or tumour; but complained of great weakness. Tongue rather dry, and thinly furred.

17th. Says he is better; no pain or throbbing sensation in the tumour: it looks large, I should say about four times larger than before the application of the galvanism. It feels hard and perfectly free from pulsation at its posterior half; but at its anterior half, where there is the sensation of fluid, pulsation is perceptible, but less strong than before. He does not now complain on its being touched. Where the positive needle was inserted, the small, round, black spot is observable; pulse 80; vomiting as before. After this the pulsation returned in the whole tumour, which, though much increased, resumed more of its original oval form, but became very prominent, the sterno-mastoid muscle being on the stretch across it.

A question now naturally presented itself,—should the application of the galvanism be repeated? My own impression decidedly was, that it should not, for should it be followed by a still further increase of size, in addition to its already large bulk, the pressure on the trachea and jugular vein might induce serious, if not fatal, results. During a temporary absence in England, my colleague, Mr. Adams, who kindly took charge of the case, had a full consultation upon it, at which Sir P. Crampton was present, when it was decided that further interference by operation in such a constitution could only hurry on the fatal termination of the case.

The vomiting continued as violent as ever, and he died, apparently of exhaustion, on the 8th June, a little more than three weeks after the application of the galvanism. A few days before his death there was no pulsation in the aneurism.

Post-mortem Examination.—There was nothing found in the viscera to explain the vomiting, the stomach being only a little

redder than natural, as was also a short portion of the duodum. The substance of the liver did not appear diseased, but it presented a curious malformation, being divided into a number of small lobules, like the kidney of an ox. No appearance of disease in the brain. The kidneys in the first stage of Bright's disease. The heart, aorta, and large vessels of the neck, were removed along with the aneurism, and carefully examined; the heart and aorta were healthy. The aneurism was about the size of a large orange, its superior surface was on a level with the upper edge of the hyoid bone, its lower with the seventh ring of the trachea; it was globular at its anterior two-thirds, flatter behind, between which two portions, on the outside, was a deep groove, partly filled by the edge of the sternomastoid, and partly by the jugular vein, which was quite flattened and impervious. The par vagum nerve ran over the posterior surface, at first expanding out into a fibrous arrangement, afterwards so flattened on the surface of the tumour that it formed a membrane a quarter of an inch broad, so thin and so closely applied, that it required delicate dissection to raise it off the wall of the aneurism, and trace it on to its trunk above the tumour, where it became normal.

The sac of the aneurism felt strong and rather thick, particularly in front, and as if its contents were in a great measure solid; posteriorly it had a softer and more fluid feel. It sprung from the anterior part of the common carotid artery, but the vessel was lost in the tumour, and only traceable a short distance up the lower part of the back. Below the aneurism, the trunk of the carotid was sound, but both external and internal carotids were much reduced in size, and so much obstructed that a probe could not be passed through them into the aneurism.

A section of the aneurism shewed the contents to be solid, the centre occupied by clotted blood, of the colour and consistence of black currant jelly; from a quarter to half an inch from the margin the layers were of a pale red colour, and had a fibrous arrangement, exactly resembling muscle; when they were removed the lining membrane was found smooth but uneven.

As far as coagulating the blood in the sac, the application of the galvanism in this case was successful, complete coagulation having been effected by it. From the proximity of the carotid artery to the heart, and the direct course of its trunk (both favouring the rapid current of the blood), as also from the very free anastomosis with the numerous branches of the corresponding artery, an aneurism in this situation is one least likely to preserve the coagulum formed by the galvanism. In the present instance, likewise, a successful result may have been prevented by the total impossibility of using sufficient pressure to obstruct the current, and prevent its washing away the newly-made clot. To be completely successful, repetition of the operation would have been required; my reasons for not deeming this advisable have been already stated. What I have observed, however, convinces me that in more suitable cases

this mode of treating aneurisms will yet be found most valuable(*a*). The sudden and rather alarming increase of the tumour, which occurred during the application of the galvanism, should it be constantly observed, may fairly be brought forward against its use in aneurisms situated, as this one was, in the neighbourhood of important organs, which would be very intolerant of sudden pressure, although they may bear or accommodate themselves (as we know they do) to the gradual pressure of tumours.

It is not easy to account satisfactorily for this rapid enlargement; the perfect integrity of the sac shews it was not from extravasation of blood by rupture; moreover, no traces of blood could be discovered. We know that during the galvanic action a quantity of hydrogen is evolved from the negative pole; it would, however, have been scarcely equal to the actual amount of the increase; the sensation, also, was of something more solid than if the contents were gaseous fluid. It now appears to me more likely to have been caused by the galvanic influence extending beyond the sac, and coagulating the fluids in the cellular tissue around it, the coagulated matter having been afterwards absorbed. The size of the aneurism at the time of death was certainly not larger than it would have been in the usual progress of the disease, and if the galvanism had never been applied.

M. Petrequin(*b*) insists on the necessity of the needles crossing, to produce a proper coagulum. The needles, in this case, though they could be made to touch, certainly did not cross, and yet coagulation was complete. But I have further reason for believing this is not necessary: I thought that, in performing the operation for the future, it would be as well to avoid, if possible, the entrance of the hydrogen gas evolved from the negative pole directly into the circulation. I therefore suggested to Mr. Fagan to make the experiment of putting an albuminous fluid into a small bladder, and to insert the positive needle into the fluid; but merely to apply the negative wire to the outside of the bladder. He accordingly filled a small portion of sheep's intestine with one part of white of egg and two parts water, quite full, and without any air. He inserted the positive needle its whole length through the gut into the fluid, and applied the negative wire merely to the outside of the sac, and succeeded in producing a large tea-spoonful of a mucous-looking coagulum, without a bubble of hydrogen in the fluid inside, but many adhering to the outside, and to a silver plate on which the sac was placed. We have no grounds to say the entrance of hydrogen into the blood is injurious; but the fact that coagulation can be produced without its necessarily being present is interesting. The condition in which the par vagum was discovered may, perhaps, explain the

(*a*) A case is given in the *Revue Medicale*, for December, 1845, of a popliteal aneurism in a man of seventy, cured by M. Petrequin, of the Hotel Dieu of Lyons, with acupuncture and galvanism, in a single sitting; and several cases have since appeared in the public journals.

(*b*) Electrical Magazine, January, 1846.

incessant vomiting. It is scarcely possible to suppose that a nerve so closely connected with the functions of the stomach could be so much deranged in structure without considerable gastric disturbance.

History of a Case of remarkable coloured Secretion from the Skin. By
C. D. PURDON, M. D., Belfast.

Barbara Murphy, æt. 40, an inmate of the Infirmary attached to the Belfast Charitable Society, the mother of two children: catamenia regular up to the last six months; attributes the first commencement of her state to a fever with which she was attacked about twenty years ago, immediately after which she experienced a pain in the ball of the great toe of the right foot, terminating in a swelling of the same part. Both ankles became painful and swollen; a short time after this ascites supervened; all these symptoms subsided on her becoming pregnant, during which time she enjoyed perfect health. About three weeks after her confinement she was seized with pain, accompanied with swelling, in the joint of the first finger of the right hand, which gradually attacked each joint of the upper extremities in succession, and spread thence to the lower, commencing above. After some time the wrists, ankles, and smaller joints of the hands, became distorted and nodose, in which state they have since continued. From this time nothing remarkable was to be observed in her state, but she continued to suffer from occasional attacks of rheumatism, and was almost always confined to bed, until three years ago, when, during an attack of rheumatic fever, the heart for the first time became affected, after which anasarca and hydrothorax supervened. These were partly relieved by a severe diarrhoea, but on its subsidence both became greatly aggravated; however, they were not only kept in check but much ameliorated by the different remedies employed. Some months ago they returned with such severity as to threaten a sudden termination of her life: when at the worst a miliary eruption appeared on the trunk, greatest in the epigastric region, from which a clear serous discharge flowed in such quantities as literally to wet the bed; there was also a great moisture on the legs, which had blisters on them, in place of the eruption; this of course was attended with the greatest relief, and the breathing became almost free. The discharge continued for some days, after which it ceased, and symptoms of dyspnoea returned with great severity for fourteen days, when, after having a sense of prickling over the whole body for about twelve hours, the eruption again appeared, attended with the discharge, and causing the same relief. In this state of alternate relapse and recovery she has been for the last two months, the duration of the paroxysms being either eight or fourteen days; but the most curious point in the case is, that the serous discharge has changed very much in its character for the last four or five attacks, being nearly alternately blue and straw-coloured, or yellow, almost like pure bile. When the blue discharge appears she is aware of its advent by a mouldy smell and a prickly sensation, which pre-

cedes it invariably for twelve hours; the yellow is not attended by either of these. The blue always appears along the posterior part of the chest; the yellow generally proceeds from the abdomen and back of the neck, and rarely from the back: the blue never has appeared on the abdomen; the two colours have been procured from the different parts at the same time. The discharge from the extremities has never been coloured. In place of catamenia there is a discharge of a reddish green colour. As to treatment every remedy has been tried without relief to any of the symptoms, either of the rheumatic or cardiac affections. The yellow colour is tolerably permanent, the blue, however, fades; she has not taken any preparation of iodine for some years, and at present uses only opiates and saline draughts. In addition, it is worthy of remark, that a very peculiar elongation of the *quicks* under each great toe nail has taken place. This became manifest on the nail being paired, and now appears like a loose fold of flesh, which hangs over the ball of the toe, and resembles in shape the bony nail.

Case of Cephalotomy for Hydrocephalus. By P. W. ELLSWORTH, M.D.,
Hartford, Connecticut, U. S.

In October, 1844, I was called to attend Mrs. A., a Scotch woman, in labour with her first child, the breech presenting. Nothing unusual occurred until the shoulders were delivered, at which critical moment there was a sudden and total suspension of pains, while the voluntary efforts of the mother were intirely ineffectual. The cord was pulsating when first within reach of the finger, but its circulation ceased in an unusually short time, apparently before the chin of the child had passed the superior strait. As soon as the evidences of death would warrant, strong traction was made upon the neck, but in vain; castor oil was administered to the patient, and, as soon as it could be obtained, an enema of senna infusion. As soon as the bowels felt the stimulus of these, the uterus responded; pains came on, and with considerable effort the head was delivered, with the face towards the sacrum. One cause of the difficulty became at once manifest, the child being enormously hydrocephalic. The delivery was finished in about two hours after the first suspension of labour pains: had these continued, the head would unquestionably have been soon expelled, but the cessation taking place before the uterus was fully emptied, a doubt arose as to the cause of delay. The patient made a rapid recovery.

On October 31st, 1845, I was again summoned, at 4 a.m., to attend the same lady in her second labour. The pains were severe; os uteri dilated to the size of a dollar, and easily dilatable; head high up, and the exact position not easily recognizable, but thought to be the first of Dewees. At 7 a.m. found os uteri dilated, and head a little advanced; at 11 a.m. found considerable progress, the pains continuing very energetic since 7 o'clock. At 1 p.m. there had been no advance since the last examination, and the pains were feebler, the descent seeming to be prevented by the os coccygis, which did not yield in the usual manner. The sutures seemed larger, and the

whole head gave a more yielding sensation than usual. Although the scalp nearly touched the perinaeum, yet it was with difficulty a finger could be passed far enough forward to distinguish the posterior fontanelle, while the anterior could not be reached at all. As the radial artery had considerable volume and resistance, and there were accompanying symptoms of febrile irritation, a few ounces of blood were taken from the arm, but as the pulse fell rapidly, the arm was bound up, and three ounces of powdered ergot of rye given. The pains increased, but there was no progress. Fully convinced that she was about to be delivered of a child similar to her last, I prepared to act accordingly, and requested the council of my friend Dr. Beresford, an English physician practising in this city. We met at 2 p.m., at which time Mrs. A. had a pulse of 120 and feebler; she had felt decidedly worse since the loss of blood, which at the most could not have been over three ounces; no pulsation of the fetal heart could be detected by the stethoscope, nor had any motions of the child been felt for several days; nevertheless, for the sake of security, Dee's long forceps were applied several times by Dr. Beresford and myself: the large angle made by the non-union of the handles, revealed in the clearest manner the nature of the case; the least traction caused the instruments to slip, evidently from the yielding of the head. Under these circumstances further trial was not warranted; I punctured the cranium with Smellie's scissors, giving access to a fountain of water, which gushed over the bed and floor. The next pain, with the assistance of a finger introduced into the orifice, delivered the child, which had evidently been dead a number of days, as decomposition had begun to manifest itself: a partial hour-glass contraction required the introduction of the hand for the removal of the placenta. The pulse of the patient continued frequent for a number of days, but she made a good recovery in the usual time.

The peculiarity of this case consists in the tendency to the production of hydrocephalic children, although the mother seemed to be in excellent health. Would not a course of constitutional treatment, by mercury or iodine, put a stop to this tendency? I proposed it, but she declined,—so there the matter rests at present. Too little attention, it appears to me, has been given to a fact illustrated by this case, and which must have been often noticed by others, viz., that ergot is extremely apt to produce hour-glass contraction. It has never occurred to me except after the use of this drug, which I have rarely used without being obliged to extract the placenta afterwards. Dr. White, late Secretary of State for Connecticut, a gentleman of extensive practice, informed me, that he had noticed the same thing. It has so often occurred in my own practice, under these circumstances, that now, if there is any unusual delay in the throwing off of the placenta after the use of ergot, I never find myself mistaken in attributing it to the irregular action of the uterine walls. Pereira quotes from Jackson(*a*), that the administration of ergot is improper when there is retention of the

(*a*) London Medical Gazette, vol. iv, p. 195.

placenta from irregular or spasmodic contraction of the uterus, though he says nothing about its actually producing such a state of things. Homœopathically it ought, under these circumstances, especially to expel the placenta, and its not doing it is another proof, added to the thousands already adduced, of the worthlessness of that system, both in practice and as a guide in the selection of remedies. These remarks are not intended to apply to the exhibition of ergot when there is want of contractile power in the uterus, with the placenta retained from that cause. In such cases experience has shewn its usefulness, though it is given here rather for the purpose of guarding against hæmorrhage than to expel the after-birth: it is probably only after the continued action of the drug for a considerable time upon an organ whose efforts are resisted, that this irregular action occurs, just as cramps follow long and severe exercise: given while the uterus is nearly empty, it would probably produce equal and regular contraction, and one pain, if strong, is usually, if not always, all that is necessary to cause its detachment, unless there is unnatural adhesions. Irregular action, after this is removed, could not easily be detected, and if it was, would do no injury, but it would subside after a little time without treatment.

Two Cases of latent Peritonitis, following upon external Violence, and terminating in Death, with the Post Mortem Appearances. By T. PUREFOY, M. D., Cloughjordan.

T. A., a healthy young labourer, aged 17, whilst engaged in hay-making upon the 20th of last June, in coming down from the hay-cock upon which he stood, allowed himself to slide upon his back; in doing which he unfortunately happened to alight upon the top of a pitch-fork handle, which had been allowed to stand carelessly against the hay-cock. It entered just at the anus with such force, that the prongs of the fork were driven into the earth, at the same moment that the young man fell upon his feet with a sudden shock. He exclaimed to his companions, upon getting up, that he was "killed," but soon became so far recovered from his fall that he was able to leave the field, and walk to his house, a distance of about half an English mile. I visited him after the accident, and found him with an anxious and alarmed expression of countenance; yet his strength was good: his pulse depressed rather than excited; no pyrexia, thirst, vomiting, or any other unfavourable symptom present, except a slight fulness and soreness of the lower part of the abdomen, complained of almost immediately upon receiving the injury.

Upon examination, the integuments, and a portion of the sphincter ani were found lacerated, both anteriorly and posteriorly, with a slight ecchymosis upon one side; whilst the lining membrane of the rectum, so far as could be seen, was evidently abraded upon its surface, and much injured, but no laceration of the intestine could be discovered with the finger, although its introduction to make this examination gave much pain. The man was placed in bed, had a cold wet cloth applied over the wound, between the nates, and took a castor oil draught with twenty-five drops of laudanum.

July 1st, bowels not moved; tympanitis not increasing: patient had some sleep; lies upon his side, merely complaining of the confined state of his bowels; neither tongue nor pulse gives any indication of peritoneal inflammation. 2nd.—On yesterday evening the oil draught was repeated a third time, as the bowels had continued obstinate, and a mild domestic enema was thrown up subsequently. The bowels were now briskly acted upon, but at the same time, a train of alarming symptoms arose, viz., violent and frequent retching, and vomiting of bilious matter, great increase of tympanitis, and tenderness of the abdomen, much aggravated by pressure, with urgent thirst. These symptoms had continued for several hours during the night, before I was made aware of the change, so that at my visit on the morning of the 2nd, I found the patient in a state of extreme danger. In addition to the symptoms already enumerated the respiration was thoracic, short, and hurried; decubitus upon the back; tongue foul, and red at the tip; pulse small, and frequent, but not characterized by any remarkable degree of hardness; no complaint of pain; swelling and soreness of the abdomen being the symptoms most distressing to the sufferer.

Under such threatening appearances, since local bleeding by leeches was not available, it was determined, as a forlorn hope, to try the effect of general bleeding from the arm. About fourteen ounces of blood were accordingly taken, without inducing faintness; but from the feeble character of the pulse, I feared to take any more, so bound up the arm, ordered a large blister to cover the lower half of the abdomen, and prescribed four grains of calomel, with a grain and a half of watery extract of opium every four hours, and directed that the patient's strength should be supported by wine and arrow-root given at short intervals. However, the urgent symptoms gained ground progressively, and death terminated the struggle on the evening of the 2nd inst., after an interval of about 48 hours from the period of receiving the injury.

Post Mortem Appearances.—Upon examining the body sixteen hours after death, the abdomen was found enlarged, tense, and tympanitic, whilst the integuments covering all the posterior aspect of the body were of a dull livid colour. The abdomen being opened, a quantity of highly fetid gas escaped; the peritoneum presented an intense degree of vascularity; at the same time that the convolutions of the large and small intestines were agglutinated to each other by a dense lymph; throughout the cavity of the abdomen, in the iliac regions, and upon the deeper seated folds of intestine, the lymph existed in thick, soft, yellowish patches. Very little serum was found in the peritoneal cavity, nor was there any trace of the extravasation of faecal matter in this situation, although a laceration of the parietes of the rectum was found upon drawing this portion of intestine upwards, so making it tense, and then examining it with the finger. The laceration extended longitudinally for about an inch, but appeared to be situated below the reflection of the peritoneum from the gut to the sides of the pelvis, which probably prevented the

extravasation of the contents of the intestine. It was a remarkable fact that the blood drawn from the arm was neither buffed nor cupped.

T. E., delicately made, and of strumous habit, three years since suffered from incipient hydrocephalus, which he completely recovered, and has since enjoyed very good health. On the 8th of January, 1846, having leaped from a wall about four feet in height upon the road, he immediately complained of slight pain in the right groin, but continued to play about for two days, although the pain was severe at intervals. On the third day after the injury the pain became very severe, attended with high febrile symptoms, a hot skin, flushed face, and furred, white tongue, the pulse being 120 in the minute, of good strength, but compressible; bowels irregular, acute pain, and tenderness on pressure, confined to the right inguinal region, without tympanitis or tenderness of the remaining portion of the abdomen; thirst is not urgent, but vomiting occurs upon taking a full drink; seven leeches were applied over the seat of pain, and he took a purgative of four grains of calomel, with one of scammony; warm fomentations were applied to the groin.

January 12th.—Leeches bled freely; bowels purged; pain, soreness, and all the urgent symptoms, much relieved; pulse 96; tongue cleaning. From this date up to the 15th instant the patient was considered to be convalescing; he made no complaint of pain or soreness of the abdomen, took light nutriment in his bed, slept regularly, and did not present any other unfavourable symptom than an occasional attack of vomiting after taking a full drink. During the above period the patient remained quietly in his bed; his bowels were regulated by mild aperients; effervescing draughts were given occasionally, and calomel and James's powder exhibited in small doses, so as to effect the gums slightly. On the morning of the 15th instant there was a return of pain in the iliac region, unaccompanied by increase of thirst, greater frequency of pulse, tympanitis, or symptomatic fever. Fomentations, frequently applied, so far relieved the pain that it was not thought necessary to use any more active treatment until ten o'clock at night, when a train of very formidable symptoms appeared. The pain suddenly became most severe; the abdomen full and tender under pressure; pulse rapid; breathing hurried and irregular; features contracted; the extremities cold; rapid sinking followed, and no effort that was made could prolong life beyond eight o'clock on the following morning.

Post Mortem appearances twenty-four Hours after Death.—Abdominal parietes of a dark livid colour, and much distended by a highly fetid gas. Upon opening the abdomen a turbid yellowish fluid flowed from the lower end of the incision. No trace of inflammation appeared upon a superficial inspection, but in turning up the omentum it was found to be firmly bound down in the right iliac region by adhesions to the cæcum and the convolutions of the small intestines. In this situation acute peritonitis existed, in a space that might be covered with the hand, and here the omentum, convolutions of the

ileum, and abdominal parietes, were intimately united by recently effused masses of lymph, so that it would appear as if these adhesions served to circumscribe the local inflammation. There was found a slight laceration of the peritoneum at the internal abdominal ring, in this situation, extending through the subcellular tissue, from which point it would seem that the inflammation had spread. It was remarkable that the inflammation was limited to the anterior aspect of the ileum, immediately in contact with the abdominal parietes, and that it did not pass round the intestine at any single point.

The preceding cases serve to establish the important fact, that acute, and even fatal inflammation of a vital organ may exist in the human subject, and yet not be characterized by the usual or diagnostic symptoms during life. In both these cases the fatal inflammation was induced by external violence; and in both the appearances found upon dissection were sufficient to account for death. Symptoms of peritonæal inflammation did not occur in the first case until within a few hours of the fatal issue; and notwithstanding, evidences of most severe and extensive inflammation of the peritoneum were found after death. In considering these facts we must conclude, either that the inflammation succeeded immediately upon receipt of the injury, and existed in a latent form without exhibiting the diagnostic symptoms of peritonitis; or, on the contrary, believe that acute and deadly inflammation could arise and spread throughout the cavity of the peritoneum in a space of about twenty-four hours. The latter conclusion might be preferred if it could be ascertained that an irritating fluid had escaped into the peritonæal sac, but in the absence of such evidence there can be little doubt as to the correctness of the conclusion that the peritonitis immediately followed upon the occurrence of the injury, remained in a latent form, and was probably exasperated to a great extent by the gastrointestinal irritation consequent upon the action of even the mild purgatives given.

The question now arises, was the treatment adapted to the nature of the case? To this inquiry it may be replied, that the treatment was adapted to the nature of the case, so far as it was understood; but that a different plan of treatment, such as that recommended by Dr. Graves in peritonitis following perforation of the intestines by ulceration, should have been followed, so that by quieting the peristaltic movements of the bowel, time might be gained for the healing of the wound, (i. e.) if this wound could have been discovered by manual examination. Would not the glass speculum ani have been a useful aid in investigating the nature of this injury? It was very remarkable, and deserving of particular attention in the treatment of this case, how speedily the operation of a mild purgative (castor oil with laudanum) was followed by the most alarming symptoms, affording but too much ground for believing that the operation of even so mild a purgative was decidedly injurious. As to the effect of the subsequent treatment, by bleed-

ing, calomel, and opium, &c., it is impossible to form any correct opinion, in consequence of the rapidity with which the disease ran its course from this period.

In the second case we have peritonæal inflammation, indicated by its proper symptoms, following upon an injury of the peritonæum, as cause and effect. An appropriate treatment succeeded in removing these symptoms, and yet, at the end of a week, the symptoms of acute peritonæal inflammation arise, without any known cause for their return, and carry off the patient in a few hours. During a period of three or four days there did not exist any symptoms of peritonitis, except an occasional fit of vomiting could be considered as such; and just when a favourable termination of the illness is hoped for the patient is cut off. The post mortem appearances indicated the existence of circumscribed peritonæal inflammation evidently of some days' continuance. Now as the alterations found in the diseased parts, such as thickening, effusion of lymph, and firm adhesions, were not likely to be the result of twenty-four hours inflammatory action, there is reason to believe that inflammation immediately followed upon the injury of the peritonæum, was subdued, but not completely removed, by treatment; that the inflammation remained in a subacute or latent form for a few days, without any decided symptoms to indicate its existence, until again lighted up into fatal activity through some constitutional predisposition, or other accidental cause. Again, should it be supposed that the fatal inflammation had its commencement on the morning of the 15th instant, it proves the important fact, that acute inflammation of a vital organ, even of very limited extent, may arise, run its course, and prove fatal, within the short space of twenty-four hours.

It may well be remarked that whenever an injury is sustained, the nature of which, from its situation, cannot be accurately known, it is hazardous to pronounce the patient out of danger before the period has elapsed during which the secondary ill consequences of such an injury are likely to arise.

Extirpation of a Tumour from the Antrum Maxillare, with Removal of the superior Maxillary Bone, including the Palate Plate. By C. ASTON KEY, F.R.C.S.E., Senior Surgeon to Guy's Hospital. Communicated by SIR PHILIP CRAMPTON, Bart., F.R.S., &c.

Merrion-square, Sept. 20, 1846.

DEAR SIR,—By the kind permission of Mr. Aston Key, I have the gratification of communicating to you the particulars of a case of tumour in the antrum maxillare, which was successfully removed by that excellent surgeon. The tumour was of great size, and must soon have proved fatal, as it had already pressed down the soft palate to such an extent as materially to interfere with deglutition. The aspect of the young woman was healthy; the tu-

mour seemed to be of a firm nature; and there was no soft or fungoid-like protrusion through the nostril. These circumstances, no doubt, determined Mr. Key to undertake the operation.

I remain, dear Sir, faithfully yours,

PHILIP CRAMPTON.

*To the Editor of the Dublin Quarterly
Journal of Medical Science.*

St. Helen's-place, Aug. 25, 1846.

MY DEAR SIR,—The operation of removing the superior maxillary bone in the young woman whom you saw at Guy's was done a fortnight ago, and she is now quite convalescent: so far the case, as you predicted, has proved quite satisfactory. The whole of the bony palate on one side, the nasal process, and the bone, with the exception of the floor of the orbit, were taken away, and exposed a large tumour of simple structure, which readily turned out from the back of the antrum. There was no difficulty in the operation, and the diseased mass was detached with ease from its bed. On examining the structure of the tumour we could discover no trace of malignant disease; it consisted of fibro-albuminous deposit, and, being of so benign a character, there is every prospect of its not returning. The incision in the cheek, which extended from the outer canthus of the eye to the angle of the mouth, healed by adhesion. I thought that you would like to know the result of the case.

I am, dear Sir, your's most truly,

C. ASTON KEY.

To Sir Philip Crampton, Bart.

Upon the Efficacy and Mode of Administration of Belladonna and Atropia. By W. R. WILDE, M. R. I. A., Surgeon to St. Mark's Ophthalmic Hospital.

One of the greatest improvements in the oculists' materia medica of late years has been the introduction of the alkaloid denominated Atropia, which, we believe, we were the first to introduce into practice in this city, upwards of two years ago. It was procured for us by Messrs. Bewley and Evans, who have solutions of it according to our formulæ, of the following strengths: one grain, two grains, and three grains to one drachm of distilled water, and three drops of spirits of wine, and numbered 1, 2, and 3. The salt is rendered soluble by the addition of a drop of dilute nitric acid, and the spirit is added to make the solution keep.

A single drop of number 1 placed upon the conjunctiva of the lower lid (where it causes neither pain nor irritation), in a healthy eye, dilates the pupil, in a period of time varying from five to fifteen minutes, to double, or even more than the ordinary medium size, and will retain it so, upon the average, from four to five days; at which period it generally begins to contract, but the pupil does not fully regain its previous size, nor the iris its mobility, till the sixth or seventh day. There will be, no doubt, exceptions to this rule, particularly in cases where

there may be such an idiosyncrasy present as would render the eye susceptible to the action of the atropa belladonna used in any form, and perhaps keep the pupil permanently dilated for months. To counteract this effect of the solution number 1, we have employed upon the second and third day after its application those remedies which generally excite the pupil to contract, such as sudden exposure to strong light, the application of electro-magnetism, the use of opium, and the application of the vinous tincture of that medicine upon the conjunctiva; but each and all these means have failed to lessen the size of the pupil, in many instances, until the end of the third, or fourth, or fifth days. Solutions numbers 2 and 3 produce a more decided effect upon the iris, and in a shorter space of time, and retain the pupil dilated for a longer period—even to the eighth or tenth day. When the object is to keep the pupil in a state of permanent dilatation, as in cases of iritis and aquo-capsulitis, as well as to try and break up recent adhesions between the iris and lens, or to withdraw the iris from protruding through an aperture caused by a wound or ulcer near the centre of the cornea; in all cases of central cataract; where the cornea is opaque in its central portion, or that a portion of the pupillary margin of the iris is attached to the back of the cornea, after the distission of a cataract; or, in fact, in any case in which we wish to produce permanent or complete dilatation of the iris, the solution of atropia will be found much more efficacious than the usual mode of applying the extract of belladonna externally. It is, moreover, much more cleanly, and is not liable to the objection urged against the latter, of producing an unpleasant eruption around the brow on which it is applied, and it is preferable to the ordinary mode of placing a few drops of the solution of the extract between the palpebræ, inasmuch as it causes no pain nor irritation.

In cases, however, where there is much conjunctivitis, or even deeper seated inflammation, attended with lachrymation, present, it does not possess the immediate and marked power over the iris which it does in the healthy eye, and its effects pass off much sooner; and this remark is applicable even to the three grain solution. It is possible that in such cases the mucous discharge, and particularly the lachrymation which is present, may dilute it too much, or the morbid irritability and increased vascularity of the organ may render it less susceptible of the local application of this remedy than it would be in an otherwise healthy condition, therefore, in cases of violent iritic inflammation, the syphilitic for instance, where the disease had considerably advanced, and extensive exudations of lymph had taken place, we would not solely depend upon the atropia solution, but likewise apply the extract round the orbit. In cases of recent protusion of the iris through the central portion of the cornea, the result either of injury, or rupture from ulceration, &c., and when there was no great irritability and blepharospasmus present, we have applied the strong atropia solution externally, by means of a small portion of linen rag wet with it, and retained for a short time upon the closed eyelids, with the most happy results.

We may here remark that the benefits arising from dilatation of

the pupil have not been sufficiently attended to in the general treatment of ulcers of the cornea. We have, on several occasions lately, been able not only to save the eye, but even to prevent adhesion between the cornea and iris (*synechia anterior*), and consequent blemish, by means of the judicious application of the preparations of belladonna. In cases of rupture from ulceration, when we have seen the patient shortly after the rupture occurred—and in many of those instances hernia of the iris had absolutely taken place—we at once applied the atropia solution, closed the lids, kept them in that condition with isinglass plaster, and then applied a large pledget of lint smeared with the extract of belladonna over the eye and brow, and retained it in position by a light bandage, at the same time that we employed, when necessary, local depletion by means of leeches on the temples and over the malar bone, together with blistering, and constitutional treatment calculated to lower the inflammation and prevent the further spreading of the sloughy or ulcerative process in the cornea. We keep the eye covered up in this state for thirty-six or forty-eight hours, and have had, in most instances, the satisfaction of finding, when we came to examine the eye, that the iris had been withdrawn from the wound, the pupil had dilated, and the cornea had united.

There are, however, certain cases in which the use of atropia is inadmissible, namely, in examining the eye for cataract, where we do not wish the dilatation of the pupil to continue longer than a few hours, if possible. In cases where we wish to dilate the pupil before we perform the operation for absorption of the lens, we have more than once seen unpleasant consequences result after this manner. It is well known to operative ophthalmic surgeons, that after the dilatation with the ordinary belladonna extract or infusion, the iris will, during the operation of keratonyxis, partially contract, either from the loss of a few drops of aqueous humour, or from its irritability being excited by the side or flat of the needle touching the margin of the pupil, or from the cataractous lens, whole or in a broken condition, pressing against it; and this condition is rather serviceable than otherwise, for should the lens be inclined to start from its bed, and press forward through the pupil into the anterior chamber, the iris acts as a partition to keep it in its place; while in a few hours the aqueous fluid is regenerated, the iris falls back into its natural position, and can afterwards be kept dilated by the continued external application of the belladonna.

If, however, the pupil has been previously dilated by the atropia, it is thoroughly immovable, and the lens is liable either to press into it or become dislocated, and get into the anterior chamber. This latter accident occurred to us some time since, in breaking up the lens for congenital cataract. We had ordered a solution (No. 2.) of atropia to be dropped into the eye the night previously, and on arriving in the morning we found the iris reduced to a mere ring. The child struggled a good deal, and a few drops of the aqueous liquid were lost during the operation, which consisted in a mere crucial incision into the capsule. On withdrawing the needle we remarked that there was no contraction of the pupil, into which the lens

pressed. On visiting the child in the evening it had been so uneasy and complained so much of pain, and there was so much lachrymation present, that we were induced to remove the bandage and examine the eye. The cornea was found to have become plump, from the regeneration of the aqueous fluid, but the iris had remained immoveable, and the lens had started into the anterior chamber, where it caused considerable irritation and subsequent inflammation. It absorbed completely, however, without a second operation, and in a much shorter time than usual.

In cases of photophobia following cataract and other operations on the eye, and attended with myosis, which had resisted the continued external application of belladonna, as well as the strong atropia solution dropped into the eye, we have found the most marked beneficial effects result from the internal administration of the extract of belladonna, given in the form of solution, to the amount of the sixteenth of a grain, from three to five times a-day. This, in the course of thirty-six or forty-eight hours has seldom failed to relieve the pain and intolerance of light, and also to dilate the pupil as far as possible.

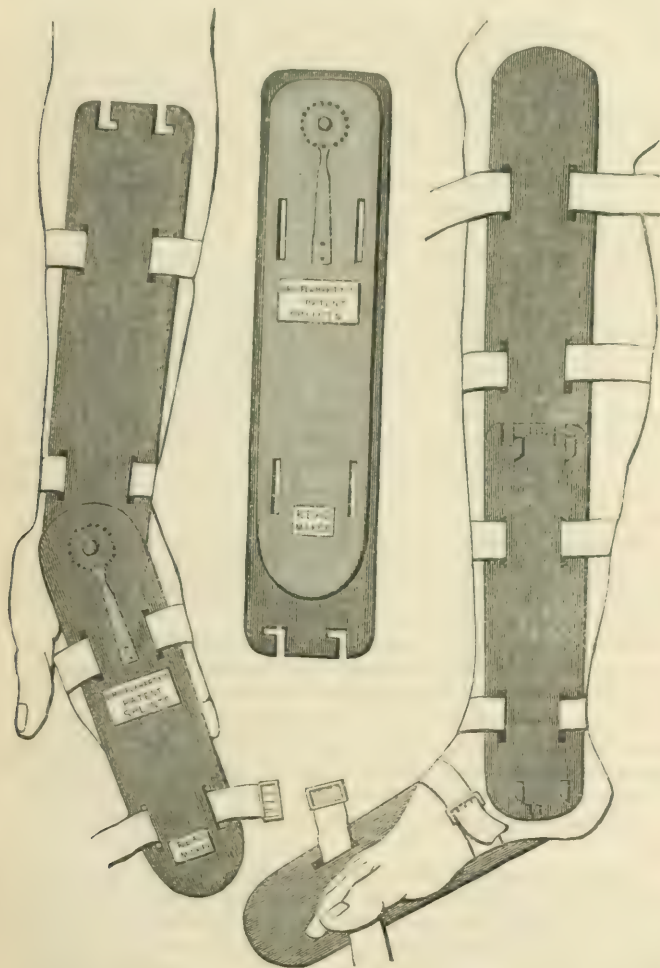
In neuralgic affections of the eye, characterized by pain of a burning description coming on at particular, and often regular intervals, sometimes at particular hours of the day, yet induced by reading or using the eye in any fine work, and unattended with inflammation or any apparent alteration in the texture or motion of the organ, &c., &c., in which rest, change of air, tonics of various descriptions, particularly iron, and other means, had failed, we have latterly administered belladonna internally, with the very best effect, in doses varying from the sixteenth to the sixth of a grain three times a day, given in the form of a solution. It may appear strange, but it is nevertheless true, that in some cases of old and inveterate photophobia, as in that form accompanying pannus, or the ophthalmia attended by vascular cornea in discharged soldiers, the internal use of belladonna will be found most efficacious.

We quote the following from a recent Number of the *Gazette des Hopitaux*: "For a long time M. Berard has employed in his practice at La Pitie, in place of the extract of belladonna, collyria containing the active principle of belladonna, atropia. This substance, signalized for the first time by M. Brandes, who had not, however, obtained it in its pure state, but since isolated by MM. Meire and Seines, presents many advantages over the extract of belladonna; first, by acting with extreme rapidity in dilating the pupil, and by being endowed with great energy, sufficient to produce its effect in a solution of 0.05 or 0.10, in twenty grammes of distilled water, possibly a consideration of little importance in an hospital, but of great value in private practice in enabling one to avoid the employment of black unctions, which disfigure so much, and for which some patients, particularly females, have a great repugnance."

Description of Field Splints, and Portable Fracture Apparatus.

By R. J. O'FLAHERTY, Staff Surgeon, Royal Military Infirmary, Phoenix Park.

DEAR SIR,—I beg to transmit, for insertion in your Journal, the following description of a set of splints and other fracture apparatus, lately invented by me, with a few observations as to their mode of application.



Having seen many accidents occur when troops were at drill, particularly in the Phoenix-park, it struck me that some very portable

apparatus, (such as is represented in the accompanying wood engraving), that would be applicable to the treatment of all accidents, was highly necessary, as medical officers, who are always required to be present on such occasions, are, in the majority of instances, unable to afford any immediate relief, from the want of portable appliances, especially in cases of fracture, which must generally remain unset until after arrival in hospital; the sufferer, in the mean time, running no little risk of aggravation of the injury during his removal from the field.

The entire fracture apparatus consists of four splints, with their pads, and six broad straps, with a buckle to each strap. The splints can be used as represented in the accompanying engraving—where, in the right and left hand figures, they are applied on the upper and lower extremities. Each splint is made of a piece of sheet iron, twelve inches long, and two and a-half inches broad, perforated with four longitudinal openings for the straps. One of the splints, (that in the centre), which is here engraved somewhat larger in proportion, differs from the others in having a shorter plate of iron fastened at one inch from its extremity, by a rivet, which allows this piece to revolve upon it. One plate is perforated with a circle of holes, at about half an inch distance around the pivot; and to the other is attached a spring with a pin at right angles, which drops at any of the circle of holes, through the two plates, by which means the shorter plate can be moved and retained at any angle with the longer one. The splints, being made of iron, are light, strong, and portable, and the simple mode of connexion, suggested by the bayonet, on the musket barrel, enables them to be formed into a proper modern application for every description of fracture. The splints are to be applied thus:

For fracture of the leg, any two of these connected, form an inside splint, extending from sole of foot to above knee-joint; 3 and 4 form the outside; and the short plate of number 1 makes a support for the foot at any required angle.

For fractured thigh, number 1, with short plate extended, to be placed on outside of thigh, each of the other portions on front, inside, and back of thigh, and the fractured limb then bandaged on the uninjured one, which will allow of the sufferer being lifted easily, and carried without further risk or pain to the hospital. The straight splint is made by adding all the splints together in a straight line.

Fractured patella is to be treated by placing two of the pieces under the knee joint, and bandaging it to the limb above and below the patella.

Fractured humerus is to be put up with the four pieces in the usual manner, with the portion of number 1 at any angle that may be required to fix and support the fore-arm, for the fracture of which, number 1 splint will be found a decided improvement on the curved splint now used; as, when the hand and limb is bandaged on it, the hand may be retained at any required angle with the arm. This splint may also be used with great advantage in cases of contracted joints, as, when bandaged on the contracted joint, whatever extension

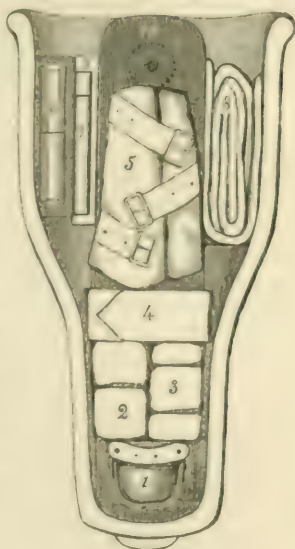
is gained by the use of force or weight can be certainly retained by merely shifting the pin to the corresponding hole around the pivot.

I have had an opportunity of applying the splints to a case of compound fracture in a man of the 13th Light Dragoons, under care of Staff Surgeon Humphrey, and as a permanent application they answered admirably, having the qualities of lightness, firmness, and neatness; and their shape, and mode of buckling the strap, allowed the fractured ends to be felt and re-adjusted if necessary, without removing the whole apparatus from the limb.

The splints, with their pads, and other articles enumerated below, fit into one pistol holster, which all mounted medical officers can carry; and for infantry field service they are fitted into a case resembling a fife-case, and can be as easily carried by any band-man or drummer of the regiment; and I think they will be found sufficient to enable a medical officer to meet fully, and in the most approved way, any accident that can possibly occur. And although devised for military service, I think the splints may prove a ready and very portable mechanical help to the country surgeon.

The holster contains the following articles, packed as here delineated:—

1, Field Tourniquet; 2, Common Roller Bandage; 3, Double-headed Roller; 4, Straps for Splints; 5, Clavicle Bandage; 6, Brandy Flask; 7, Plaster Holder; 8, Splint Pads; 9, Pocket Case; 10, Splints; and to these may be added occasionally the Saw and Long Knife.



Your's truly,

R. G. O'FLAHERTY.

Case of Popliteal Aneurism cured by Compression of the Artery between the Sac and the Heart, within twenty-four Hours; Coagulation of the Contents of the Sac produced in twelve Hours. By W. C. HUMPHREY, Staff Surgeon, Royal Military Hospital, Phoenix Park.

THOMAS NEWSAME, 7th Fusileers, aged 43, of rather intemperate habits, by trade a shoemaker, and employed frequently in the regimental workshop; has served twenty-two years in the army, including five at Gibraltar, from whence he was sent home in 1829, having suffered severely from fever and ague; since then he has had good health, with the exception of three attacks of primary syphilitic disease, for one of which he took mercury.

Early in June last he felt some pain and uneasiness in his right leg, which never excited particular attention until the 15th of June, when he was sent on escort duty from Naas to Newbridge, a distance of five and a half miles. On his return from thence he was seized with severe pain, extending from the right knee and ham to the outer ankle, which rendered him quite lame. On the 18th June he reported himself sick to Dr. Sunter, assistant surgeon of his regiment, who discovered an aneurism in his right ham, about the size of a hen's egg. He was admitted into the regimental hospital on that day, and remained there until 28th July, when he was transferred to the General Hospital at Dublin. While under Dr. Sunter's care, pressure was applied by means of a tourniquet round the thigh below the origin of the profunda artery, and a heavy weight laid over the femoral artery where it crosses the pubes, which appeared to have had the effect of retarding the increase of the tumour.

On admission into the General Hospital, 28th July, the tumour was nearly as large as a goose egg, and extended up the back of the thigh in the course of the artery. It was softer in the centre than at the circumference, and had a very strong pulsation; pressure on the artery in the thigh suspended the pulsation, and slightly diminished its size. The limb measured an inch and a half more than the left in circumference at the knee. He seemed in good general health, had no disease of the heart, and no appearance of any other aneurismal affection.

July 30th. The instrument for compressing the femoral artery at the groin, constructed by Mr. Read, of Parliament-street, in this city, was applied, and the pulsation in the aneurism arrested; a second instrument being placed loosely over the artery at the inferior third of the thigh, to be used alternately with the former. In half an hour the limb became discoloured, cold, and slightly swollen, but soon began to resume its natural appearance. The pressure in the groin was borne for two hours without much pain; previous to relaxing it, the lower instrument was screwed tight, so as to completely prevent a current of blood passing through the sac, and to put it as nearly as possible in the same condition as if a ligature had been placed on the vessel. Being an intelligent man, and perfectly understanding the principle upon which his cure was to be attempted, the regulation of the pressure was, after this, left to himself, with a strong caution never to loose both instruments at the same time.

July 31. Compression was kept up without intermission during the whole of yesterday, sufficiently strong to prevent any pulsation in the aneurism, the point of pressure being changed every hour and a half. About nine in the evening he was seized with most severe pain in the ham, extending down the calf of the leg, which continued until morning, and entirely prevented sleep. The tumour is diminished in size, and quite free from pulsation. The leg and thigh slightly swollen, but without discolouration. The instrument in the groin causes less pain than that on the thigh.

August 1st. Tumour smaller, quite firm, and without pulsation;

a small artery can be traced running superficial to the sac, and another on the inside of the knee; swelling of the limb subsiding.

August 2. Both instruments were removed this morning (sixty hours after their first application), and the limb examined. The aneurismal sac presented the appearance of a solid, hard tumour, without the slightest pulsation, and the circumference at the knee was half an inch less than when the man was admitted into hospital. He now states that when attacked with pain in the ham, on the night of the 30th July, he was in such agony that he unscrewed both the instruments, with the hope of obtaining relief, and, putting his hand on the tumour, he found that the pulsation had entirely ceased. From this it would appear that coagulation of the contents of the sac had taken place in twelve hours from the first application of the pressure. He avoided mentioning this circumstance before, in consequence of having been so strictly forbidden to relax them both at the same time.

In half an hour the instruments were re-applied loosely, so as to moderate the flow of blood in the artery, without exciting pain.

August 12. All pressure discontinued this day; tumour reduced to half its original size, and quite hard. No pulsation in the tibial arteries. He was directed to remain in bed for a few days.

August 14. Allowed to get up and walk about. The limb feels stiff and benumbed, and he is rather lame.

August 30th. Lameness gone off; no inconvenience from ordinary use of the limb.

Successful Method of arresting the Hemorrhage of Leech Bites.
By ANDREW MARSHALL, M. D., Belfast.

FINDING that an easy and certain method of stopping the bleeding after the application of leeches is still a desideratum, I beg leave, through the medium of your valuable Journal, briefly to bring before the profession a method which I have successfully employed for many years. This I freely communicated to many of my professional brethren of this town, so soon as I had satisfied myself of its general efficacy; but as we still occasionally hear and read of infants dying in consequence of the application of leeches, I feel the importance of giving it a more extended publicity. The method is simple,—whenever a leech-bite bleeds profusely, and compression cannot be made, as over the neck, abdomen, &c., I wipe the cut quickly with a bit of lint, or fine linen, and while it is comparatively dry, seize a small portion of the integuments surrounding the bite with the finger and thumb of one hand, and between them continue to make a moderate, but not painful, pressure. If the child be restless and struggle, I loose the hold, but instantly dry and seize the cut as before. One may be compelled to repeat this process three or four times, but ultimate success is certain. At every subsequent seizure, the hæmorrhage is seen to be more languid; and in a period varying from five to fifteen mi-

minutes, is completely suppressed. I may add, that the irritation attendant on leech-bites is not of more frequent occurrence after this pressure.

Necessity led me to this expedient upwards of twenty years ago. A delicate lady, with symptoms of peritonitis, had a number of leeches applied over the abdomen; all the bites ceased to bleed in good time, except three, which continued to pour out arterial-coloured blood. I was sent for, used alum and the nitrate of silver, and thought I had suppressed the hæmorrhage, but was again called, and found that more blood had been lost than I intended or wished for. The lady was faint, and no time could be lost; I seized two of the bites in the manner described, and directed the nurse to take hold of the third, while I could procure the assistance of a friend, and consider what could be done further. Immediately afterwards it occurred to me, that if the same moderate pressure could be kept up for a time between the fingers, the bleeding would be suppressed. My anticipations were realized, and all my subsequent experience warrants me in recommending the same easy method for general adoption. I have never since been annoyed by leech-bite hæmorrhage, and do not hesitate to apply leeches in children's diseases over the neck, abdomen, or any other part where the integuments are loose, and can be pinched up, provided there be no morbid sensibility of the skin or subcutaneous tissue.

[Since we received the above most interesting and valuable communication of Dr. Marshall's, we had an opportunity of testing the method there recommended. A child, four years of age, had had a single leech applied about half an inch from the external angle of the eye. It bled so profusely and continuously for the twenty-four hours following, that upon application being made at the hospital, the child was quite blanched. Several methods having been tried in vain to stop the bleeding, we had recourse to the mode of pressure by pinching up the integument between the finger and thumb for about three minutes, and had the satisfaction of finding that it completely arrested the bleeding.—ED.]

Cases of Hæmorrhoidal Tumours treated with Nitric Acid in the year 1833. By J. W. CUSACK, M. D., Surgeon to Steevens' Hospital.

[In our memoir of the late Dr. Houston, in the last Number of this Journal, page 301, we stated that Mr. Cusack was the first person to employ nitric acid for the cure of hæmorrhoids in Dublin; and we promised our readers to substantiate our assertion by inserting some of these cases in our present number. The two following cases, which are extracted from the public clinical records of the Hospital, are here inserted, not for any intrinsic merit in them, or any peculiarities attending their treatment or results, for they were rather unsuccessful than otherwise, but simply as establishing a fact of which the profession should be cognizant. We may, however, remark, that Mr. Cusack does not now place the same faith in this remedy,—which,

after all, is not of quite modern invention,—which he did when he first introduced it to the notice of Dr. Houston, as the proportion of cases to which it is applicable are much fewer than was originally supposed. Where operation is necessary, and the removal of the excrescence is either required by the patient, or advised by the surgeon, he now prefers removing them by the actual cautery in the following manner: With a pair of large clamp-like forceps meeting by their flat edges for about two inches of their blades, which are here covered over with strong buff leather, which likewise forms an apron of about six inches in diameter, the hæmorrhoidal excrescences are grasped tightly at their base. The leather and forceps are previously wet with cold water, and when the piles are fixed in the manner we have described between the jaws of the forceps, their necks or pedicles are partially strangled by means of the pressure thus applied, while the surrounding leather protects the neighbouring parts from the action of the cautery, which is thus applied: A burning iron, somewhat in the shape of a hay-knife, but with a stem twelve inches in length, fastened into a wooden handle, and altogether somewhat resembling Mr. Peil's lithotome, is brought to a white heat, and while the hæmorrhoids are fixed as already described, it is quickly applied with a slight sawing motion upon each side of them, and they are thus instantaneously, without hæmorrhage, and with comparatively little pain, removed.—*Ed.*]

The following are the cases to which we allude:

John Keegan, aged between 60 and 70, a very feeble old man, admitted to No. 4 Ward, Steeven's Hospital, January 23rd, 1833. He states, that about twenty years ago he observed a slight discharge of blood at stool; his bowels were free at the time, and he can assign no cause for it. Rarely did it bleed when not at stool, and he had slight pain at the anus. A few months after, he noticed the protrusion of tumours from the anus at stool, and from these blood oozed. They have continued to enlarge ever since, and of late have become very troublesome.

At present the parts about the anus are wasted and relaxed. On forcing, as at stool, a portion of the rectum is protruded; at its margin it is encircled by a purplish fold formed by the relaxed verge of the anus, and within this, growing from the mucous membrane, are a number of purplish, soft, and insensible tumours, separated from each other by narrow sulci; this surface is smeared over with mucous and whitish matter, and blood exudes from it. The whole bunch of tumours is about the size of a small orange. They are easily reduced by pressure made with the finger. He has frequent tenesmus, by which these are protruded, and even carrying a load produces that effect, which is accompanied by smarting pain. His appetite is puny, and he has some dyspeptic symptoms; occasionally pain under the right short ribs. No palpitation; he is very sallow and emaciated.

January 26. Yesterday Mr. Cusack applied concentrated nitric

acid to the surface of one half the tumours, and immediately after oil was smeared on. The surface was whitened by the acid. He did not seem to suffer much pain by it, and in the course of the day had a stool. The tumours protruded; he has no pain now.

January 29. The tenesmus is much less troublesome, but the hæmorrhoids bleed and come down as usual; has some headache. Ordered electuary of sulphur and bitartrate of potash.

February 2. The acid was again applied to the tumours more freely than at first, but his age and debilitated condition forbade interference much farther, so he left the hospital shortly in a much more comfortable condition than when he entered it.

William Kilgray, aged 39, a servant, of healthy appearance, was admitted to No. 7 Ward of Steevens' Hospital, October 23, 1838.

Twelve years ago he noticed an itching at the anus, and soon after the protusion at stool of small tumours, which quickly receded without any pressure. They increased very little and gave him no trouble until a year ago, when their size became much greater. He had straining at stool, lancinating pains, and hæmorrhage from them when down; but they receded quietly of themselves after. Since his confinement to bed they have bled more freely, and when protruded do not go up for some hours. His bowels have always been costive, though he has tenesmus.

February 13. The inner surface of the gut all round is now lined with soft purplish tumours, separated by narrow sulci, and smeared over with flakes of mucus; they are not painful to touch; protrude at stool, and sometimes bleed; has lancinating pains through the anus, appetite good; digestion impaired; has occasionally gastrodynia; in other respects his health is good.

Strong nitric acid was applied by Mr. Cusack to the surface of the tumours, and immediately after oil was smeared over it; he suffered severe pain for two hours after.

February 18. Since the acid was applied the verge of the anus is swollen, red, and tense; the hæmorrhoidal tumours protrude as usual; they are deep red, and discharge thin bloody serum; had one stool this morning, accompanied by bleeding. Acid again applied.

February 25. Tumours still protrude at stool, but they are greatly diminished in size; pain not less. Acid again applied. Did not give much pain; he complains of being a little better. Acid again applied.

March 7. The tumours are smaller, bleed less, and go up much more quietly after stool.

Left hospital March 18, greatly relieved.



Barth. W. Mogg

Publin. Hodges & Smith

ILLUSTRIOUS PHYSICIANS AND SURGEONS IN IRELAND.

No. II.

BARTHOLOMEW MOSSE, M. D., SURGEON.

Founder of the Dublin Lying-in Hospital.

With a Portrait.

IN our last Number we alluded to the establishment of that noble institution, The Dublin Lying-in Hospital, as one proof of the high estimation in which the science of medicine and surgery has been held by those engaged in the practice of it in this country. We may add, further, that it is an evidence of energy and benevolence such as have rarely been exhibited. Men will labour diligently for their own advancement, either directly or indirectly, and will even contribute liberally to the relief of distress; but how seldom do we see an individual devoting his time, his talents, bodily and mental labour, and his wealth, to the sole purpose of raising up an asylum for the relief of suffering, and, at the same time, for the improvement of his own profession, without the prospect,—nay, we may say, without the possibility,—of an adequate reward? And yet this was what was done, simply and without display, and, as will appear by the following memoir, under circumstances of unparalleled difficulty, by the founder and builder of the Lying-in Hospital in this city. If the College of Physicians may justly glory in such a man as Sir Patrick Dun, the Surgeons have no less reason to be proud of Dr. Mosse.

As a sketch of the life of such a man may afford encouragement and support to those who are engaged in the actual strife of life, and cannot but interest all who are occupied with similar pursuits, we now present to the profession, and to the city of Dublin, for which he achieved so much, such details as we have been able to collect (*a*).

(*a*) In the memoirs which shall appear in this our Gallery of "Illustrious Physicians and Surgeons in Ireland," we shall in every instance acknowledge our obligations to the various authors, and also state the sources from which we or they have drawn the materials of such. It is strange that up to the present date, no Life or Sketch of the noble philanthropist who forms the subject of this memoir should have appeared in print. The corporation of the Lying-in Hospital should certainly have done some such honour to his memory. In the second volume of Whitclaw and Walsh's History of Dublin, published in 1818, we find some brief notice of the benevolent founder of the Lying-in Hospital, but the scale of that work forbade any extended biography. "The case of Mosse," presented to the Irish Parliament, printed bills of the various "schemes" invented by him for the purpose of raising money to build and support the Hospital, and such like means of information, occasionally crossed the path of the literary antiquary; but no effort was made, either by the corporation or the medical staff of the hospital, to collect and arrange these materials, till a few years ago, when his descendant, William Monck Mason, Esq., author of the History of St. Patrick's Cathedral, &c., made some searches after the papers of Mosse, and commenced to collect information, with the intention, we understand, of publishing his Life; but this, if ever completed, has never seen the light. This circumstance, however, may have prevented those immediately connected with the institution from engaging in

BARTHOLOMEW MOSSE, son of the Rev. Thomas Mosse, rector of Maryborough, Queen's County, was born in the year 1712. After receiving a "genteel education," he was sent to Dublin, and bound apprentice to Mr. John Stone, surgeon. We know no-

the matter. To our esteemed friend and contributor, Dr. Fleetwood Churchill, the profession is mainly indebted for reviving the history of Mosse. With great labour and research he procured and condensed all that was known about Mosse (chiefly, however, in a medical point of view), and read it at one of the meetings of the Obstetrical Society, in the year 1842. Dr. Churchill kindly placed his MS. in our hands some weeks ago, and we had it at once put into print. On reading it over, however, we found references made to an unknown biographer, and to an original document, of which the following is the history, and which we consider of such value in an historical and archaeological point of view, and moreover, so unlikely again to meet the public eye, that we have stopped the press, abstracted the Ophthalmological Report which was promised in our last, and have printed this most interesting record almost entire, and without alteration, in its stead.

This document is a manuscript "Account of the Rise and Progress of the Lying-in Hospital in Dublin, with an Attempt towards the Life and Character of Doctor Bartholomew Mosse, the Founder thereof, by B. H——," which is now in the possession of Dr. Collins, ex-Master of the hospital, who received it from the late Dr. Joseph Clarke (with whose memoir we hope one day to present our readers); and Dr. Collins kindly placed it at our disposal. Upon searching the records of the Hospital, we find that the author, Benjamin Higgins, was first secretary to the board, and afterwards the registrar of the Hospital in 1760,—and must, therefore, have been personally acquainted with Mosse, and an eye-witness of much of what he wrote about. Moreover, Dr. Collins has, in a note to us, borne the following testimony to this gentleman: "Mr. Higgins was one of the most correct men that ever filled any public office, as well as a man of most exemplary character. I have often and often heard Dr. Clarke speak of him in the highest terms, and it always appeared to me to give him much pleasure to do so." This account is drawn up in a clear, simple style; is a plain statement of facts, and a transcript of several documents, the originals of which do not, in all probability, now exist, but to which several references are made in the archives of the Institution. With the exception of a few transpositions, we have made no alteration in the text, and have marked as quotations, and printed as they were written, all those portions extracted from Higgins's "Account."

Mr. Strickland, the present registrar, has with laudable zeal and industry lately collected into a large volume several most interesting documents, consisting of various original letters, petitions, deeds, statements, accounts, receipts, and agreements, &c., relating to the founding of the Hospital. To this volume, together with the minute book of the Hospital, we have been kindly permitted access by our friend, Dr. Johnson, the present Master, who has also presented us with a copy of a manuscript history of the institution, written by the late Dr. Cleghorn. To Dr. Churchill, however, we owe the great bulk of our obligations.

We are happy to inform our friends, that the portrait which accompanies this biography is entirely a work of Irish art. The original picture, which now decorates the board-room of the Hospital, was presented to the institution by W. M. Mason, Esq., in November, 1833, but by whom painted we have not been able to discover; the sketch was made by Mr. James Forde, and engraved by Mr. Duncan. There is also a plaster bust of Mosse, standing on a bracket in the hall, with this inscription underneath:

BART. MOSSE, M. D.

MISERIS SOLAMEN

INSTITUIT.

MDCCLVII.

It seems to have been modelled from a mask taken after death, and was probably the work of Van Nost. We offer no apology for, but rather congratulate our readers and the public on this lengthened biography of our distinguished countryman.—**EDITOR.**

thing of his pursuits or habits of life as a student, but that they were creditable to him, and that he availed himself of such opportunities as offered, may be presumed from the following certificate, which was found among his papers after his decease:

"I do hereby certify that Mr. Bartholomew Mosse hath faithfully and diligently served his apprenticeship to me; and I do hereby believe him well qualified to practise surgery.

(Signed),

"JOHN STONE."

Dublin, 12th July, 1733.

The Royal College of Surgeons of Ireland was not incorporated until 1784, and it appears that, previous to this event, the Surgeon-General possessed the power of examining and granting licenses to practise surgery. Thus we read:

"I do certify that I have examined Mr. Bartholomew Mosse, who served his apprenticeship to Mr. Stone, in Dublin, and find him very well qualified to practise the art of surgery.

"Dated in Dublin, this 12th day of July, 1733.

"JOHN NICHOLS."

There is a discrepancy here which we are not able to explain, except by supposing that Mr. Nichols acted as a substitute for the then Surgeon-General, as he himself was only appointed to that office by letters patent dated April 3, 1761.

Sometime after receiving this qualification or license (probably about 1737 or 1738, but the exact date is uncertain), Mosse was employed by the Government to take charge of the men drafted from Ireland to complete the regiments in Minorea; and that he performed the duty satisfactorily is shewn by the following certificate.

"We do hereby certify that Mr. Mosse, one of the surgeons appointed by Government to take charge of the men draughted from Ireland to complete the regiments in Minorea, has performed his duty in taking care of those men that were under his charge, and likewise has greatly recovered those who came on board diseased.

"Given under our hands, at St. Phillip's, October 4, 1738.

"WILLIAM CONGREVE.

"CHAS. WHITEFOORD.

"ROBT. COTTER."

We here quote from the manuscript memoir of Mr. Higgins, referred to in the foregoing note, and from which we have gleaned many of the previous particulars.—"Dr. Mosse, both before and after the above appointment, practised surgery and midwifery with great success; but this did not prevent his seeking to add to his information, by intercourse with the practitioners of other countries, for in a paper which he afterwards published, he states, that, 'intending to perfect himself in surgery and midwifery, he travelled into England, France, and Holland, and several other parts of Europe; and that from his first entrance into such study and profession he became convinced of the great usefulness, if not necessity, of having an hospital for lying-in women in the city of Dublin, and

resolved as far as in his power to have such an hospital established; and for that purpose laid himself out particularly to inquire into and to observe the hospitals in the countries through which he travelled."

The conviction thus early entertained, and the plans thus carefully matured, were not likely to remain inoperative in a mind so energetic in its benevolence as Dr. Mosse's: indeed, had he been less prompt, an adequate stimulus would have been offered by the misery and want of the poor, witnessed by him in the course of his practice. Even in the present day, when the means of relief for the distressed have been so multiplied, there are few of us who have not met with cases of melancholy destitution at a time when there is more than usual need of kindness and comfort. The necessity of an institution for poor lying-in women thus rendered apparent by his daily experience, Dr. Mosse determined upon putting his plans into speedy execution. "Having," says his biographer, "settled in Dublin, he married the daughter of the Venerable Dr. Whittingham, Arch-Deacon of Dublin, and having obtained a license in midwifery he quit the practice of surgery."

"In the course of his practice charity often demanded his assistance; and he hath often declared, that the misery of the poor women of the city of Dublin, at the time of their lying-in, would scarcely be conceived by any one who had not been an eye witness of their wretched circumstances; that their lodgings were generally in cold garrets open to every wind, or in damp cellars, subject to floods from excessive rains; destitute of attendance, medicines, and often of proper food, by which hundreds perished with their little infants.—*State of the Hospital, published November, 1750.*

"These distresses excited his compassion, and he resolved no longer to delay his endeavours to establish an hospital for poor lying-in women. Having communicated this humane and charitable intention to a few particular friends, who highly approved of his schemes, he took a large house in George's-lane, which he furnished with beds and other necessities, and opened the same on the 15th of March, 1745, continuing to support it chiefly at his own expense, and constantly attending it in person until the apparent usefulness of it induced several well-disposed persons to encourage the undertaking by benefactions and yearly subscriptions, which encouraged him to enlarge his plan.

"He belonged to a society called 'The Union,' consisting of a number of persons of different occupations, most of whom subscribed four shillings and four pence yearly, to be paid quarterly, for the support of the intended hospital; and this is supposed to have been the first assistance he received."

It is quite clear that this would go but a very little way towards defraying its expences, nor have we any information as to its other sources of revenue, but Dr. Mosse seems to have confidently anticipated that an institution so valuable would not be allowed to fail for want of funds. Perhaps he thought, as we heard a well-known

charitable individual of our day declare, that the "best way of getting money is to get into debt." The house which he purchased in George's-lane is at present No. 59, South Great George's-street, opposite Fade-street; it stands back from the street, and is now approached by a narrow alley; the first building contains twelve rooms, with closets for nurses; and at the rear of this is a second, containing one large and two small wards, with out-offices. In front of it there was originally a court-yard, which may still be seen on some of the old maps of the city(*a*), but this space has long since been filled up with buildings; the whole is now in a most dilapidated condition, and tenanted by a number of poor families. The accompanying sketch of this most interesting building, even in its present state of decay, may not be without its interest.



So far, then, we may consider the original hospital founded and established by the enterprize of one man; and in our estimate of the credit due to him we ought not to forget that the institution was the first of the kind in the British dominions, and may therefore be truly regarded as the parent of all those in the capital of the sister country(*b*).

(*a*) See the charts published with Wilson's Dublin Directory about that period: see also Pool and Cashe's Views of the City of Dublin, 1780. In the lower part of the old hospital in George's-lane originally resided the father of the late Archbishop Magee; and in the small building behind it (now an envelope manufactory), was, some years ago, the well-known "Daly's Academy."

(*b*) In consequence of applications then made to Dr. Mosse for information as to

In *Faulkner's Journal* for March, 1745, we find an account of the opening of the Hospital in George's-lane, and at the conclusion of it the following notice, from which it would appear that the founder received but little sympathy from his professional brethren, although he offered them advantages that few would now be slow in accepting. It is as follows:—"Constant attendance will be given at the said Hospital by Mr. Bartholomew Mosse, until assisted by the rest of the gentlemen of the faculty."(a)

As the hospital became more known, its friends and supporters increased; and besides ordinary subscriptions, Dr. Mosse, who was essentially a "man of many projects," had recourse for its support to plays, lottery schemes, concerts, oratorios, &c.; and we may mention that he brought over Castrucci, the last pupil of Corelli, as an attraction to these concerts. These various resources had produced, since 1745, about £3649 altogether at the time (1750) when he published his first Report.

Reports of the Institution were published annually, giving the number of females relieved and children born, with a statement of the receipts and expenses; and from one we give the following extract, shewing the care taken in the economical disbursements of the funds, when compared with similar institutions: "The supporting of 2307 women in the British Lying-in Hospital, London, as ap-

the plan and method of conducting his hospital, the Brounlow-street Hospital in London was established in 1747; and in the year 1748 or 1749, the British Lying-in Hospital, Long Acre; followed in 1750 by the City of London Lying-in Hospital, Aldersgate-street; in 1752 by Queen Charlotte's Lying-in Hospital, Paddington; and in 1765 by the Westminster Lying-in Hospital, Lambeth, "on the same plan and with similar regulations."

(a) We copy the following from *Faulkner's Journal*, No. 1884, from March 23 to 26, 1745:

"On Friday, the 15th instant, was opened an hospital for poor lying-in women, in George's-lane, facing Fade-street; and the same evening Judith Rochford was received into the said hospital, recommended by the minister, churchwardens, and a great number of the principal parishioners of St. Andrew's parish, as a very great object of charity; and on Wednesday last she was safely delivered of a son.

"As this hospital is solely designed for the use of such poor and distressed women as are not in circumstances to provide themselves at such a time with a convenient place to lye in, or with the common necessities for persons in such a condition, by which means many poor though honest and industrious women perish, and leave their helpless orphans a burthen to the public (notwithstanding they may at any hour have the best assistance in the physical way that this city affords), therefore, the directors of this hospital request that the public recommend none but such as truly merit the benefit of this most useful charity.

"The beds hitherto erected are few, but the directors in a short time hope to be able to fill the house, which will conveniently contain twenty-four beds. This number, they apprehend, will be sufficient to relieve all the poor objects, in such a way, in this city. Every woman is to have a warm, decent bed to herself, and shall be provided with all manner of necessities, and the greatest care imaginable will be taken of her and the new-born infant from the time she is received until well able to leave the hospital without danger; and all this without the least expense to her.

"N. B.—Those who are inclined to contribute to the support and encouragement of this so useful and charitable an undertaking may send their subscriptions or benefactions to the Rev. Dr. Wynne, Dr. Blashford, Sir Arthur Gore, Bart., Thomas Prior, and Ralph Simpson, Esqrs.; or any of the clergy in and about Dublin."

pears from the printed state of the said hospital, cost £7313 16s. 10½*d.*, which is more than £3 3s. 5½*d.* each; whereas the supporting of 3975 women in the Lying-in Hospital in George's-lane, Dublin, including all expenses, came to but £3913 13s. 0½*d.*, which is very little more than 19s. 8½*d.* each. By which the manager of the last named charity saved to the public no less a sum than £8696 12s. 5½*d.*; for had the above 3975 women cost £3 3s. 6½*d.* each, the whole amount would have been £12,610 5s. 6*d.*”

“This hospital, besides the relief of the distressed, was intended as a school for young surgeons intending to practise midwifery, as it might render it unnecessary for such to resort to France and other foreign parts for instruction; and also as a nursery to raise and transplant into the several parts of the kingdom, women, who, being duly qualified, might settle in such parts as most stand in need of them. The Doctor was, at the time of opening the hospital about thirty-three years of age, in full health and vigour, of a clear understanding, affable and agreeable in his conversation and behaviour, and beloved and esteemed by all his acquaintances; and the great advantage of it being soon observed, as well abroad as at home, application was made to Dr. Mosse, in the year 1747, by several persons in London (particularly Dr. Layard), for his plan, scheme, and regulations, which he transmitted to them; and an hospital was erected in London the year following on the same plan, with the same regulations, which soon met with so great encouragement from the public, that before the year 1751 two more hospitals for lying-in women were opened in the said city.”

We have now arrived at the second grand epoch of Dr. Mosse's undertaking. Finding that the applications for admission exceeded the accommodation of the house in George's-lane, and also that there were many inconveniences which he could not remedy, he determined to erect an hospital which should combine extent with suitable convenience. Promptitude in executing that which he deemed advisable appears to have been a remarkable feature in Dr. Mosse's character, and in the present instance was displayed as usual: for on August 25, 1748, three years after the opening of the old house, he took the piece of ground in Great Britain-street, consisting of 4A. 19P., at present occupied by the hospital gardens and Rutland-square. By the lease, dated as above, W. Naper, Esq. made over the ground to Dr. Mosse, his heirs and assigns, for lives renewable for ever, at the yearly rent of £70.

This was of course a considerable addition to the limited finances of the original hospital, but it was a trifle comparatively. The new hospital had to be built, and on no limited scale, and meanwhile the old establishment had to be kept up; and yet we find no hesitation in the mind of this large-hearted man about the personal difficulties in which he might be involved by his benevolent undertaking. He seems to have embarked his whole interest and heart, as well as his money, in the institution, from which, it is evident, he could have little hope of remuneration. No sooner was the ground taken than

he set about devising how it might be rendered available to the funds. "And in order," says his biographer, "to secure a probability of maintaining such hospital, he first, at the risk of his whole fortune, laid out and furnished a garden, with an orchestra, coffee-room, and decorations, for the entertainment of the public in the manner of Vauxhall, near London, whereon he expended about £2000. He then employed a band of music, and soon found his expectations fulfilled by a constant resort of company during the summer season which produced nearly £400 annually. The Doctor was so much delighted with the beauty of the garden, that he employed a painter (M. Grezoni), and had a perspective view of it painted on canvass, with the company, music, &c., which cost him an hundred guineas. This picture was accounted a great masterpiece, and was so true a representation, that the Doctor intended to have it engraved the size of a large sheet of paper, and to be sold at three half-crowns each, for which he actually received subscriptions from several persons. He sent the original picture to France to be engraved, but it was seized, upon being landed there, and could never since be recovered.

"About the year 1749 there were many reports propagated reflecting on the character of Dr. Mosse, which it is supposed were occasioned through envy of his great talents and success, as several gentlemen of the professions of physic, surgery, and midwifery, were his chief enemies, and made use of all their endeavours to blast his reputation and overturn his scheme. Amongst many reports to his disadvantage, one of the chief was, that he had taken the lease in his own name, and for the use of himself and family, without any intention of building an hospital; and that, under the specious pretence of public charity, he was then extorting large sums of money, with which he meant to quit the kingdom. To obviate all suspicions of that nature, and to satisfy the public of the rectitude of his intentions, he executed a declaration of trust, endorsed on the lease, whereby he made over the same to three gentlemen of note, in trust for the use and support of the said charity. This declaration was dated the 1st of January, 1749, and was duly registered."

We know not whether Dr. Mosse expected that the public would give him credit for disinterested benevolence in these varied schemes—perhaps he never thought about it; but in the present day, at least, we do not believe that any evidence could convince some persons that a man who founded an hospital that flourished, gave concerts, bought ground, laid out gardens, &c., &c., was not making a very large fortune by it; and that simply, because they know of no other motive which would tempt themselves to do likewise. We need not, therefore, be surprised that, notwithstanding his enormous personal risk, and the actual outlay of money, and in the teeth of a yearly authentic statement of accounts, that these prudent speculators suspected a good per centage somehow, and reported that he intended "to quit the kingdom."

"Having now purchased timber, and many other materials

towards erecting the new hospital, he thought proper," (says the manuscript memoir from which we quote), "to distinguish the city of Dublin, for the relief of whose poor the Hospital was chiefly intended, by giving to the Lord Mayor the honour of laying the first foundation stone. And, accordingly, on June 4, 1751 (May 24, 1751, old style), being the birth-day of His Majesty King George III., then Prince of Wales, the first stone was laid by the Right Honourable Thomas Taylor, Lord Mayor; Thomas Morgan, Esq., Recorder; Thomas White and George Reynolds, Esqrs., Sheriffs; who came for that purpose, attended by the Aldermen, Commons Council, and the Masters and Wardens of the several corporations of the city, with their proper insignia." The first stone was laid at the west corner of the front of the hospital, and under it Dr. Mosse placed an engraved plate of copper, giving a brief account of the particulars already mentioned, with gold, silver, and copper coins of that year. The building, as it now stands, was designed, and also built, by Mr. Cassels, a distinguished architect of this city.

The following anecdote is so characteristic of the energy and hopefulness of the subject of it, and told with so much *naïveté*, that we give it in the words of his biographer: "It is worthy of remarking what the doctor assured an intimate friend, that on the morning of the 24th of May, whereon the first stone was laid, he was *barely worth* £500; and although he knew the hospital would cost him above £20,000, yet he never despaired of seeing it finished." And he rather quaintly adds: "As a further proof of his resolution and perseverance, he gave the Lord Mayor and his attendants a genteel and liberal entertainment, to which he had formally invited them; so that he seemed to be possessed of many thousands, while no man, besides himself, knew his real circumstances, having before been obliged to expend almost his whole personal fortune, and to mortgage his estate for near its value."

The building, thus commenced, was carried on with spirit as far as the funds permitted; the Doctor raised all the money he could on his own credit, and then unfortunately had recourse to lottery schemes, at that time much in vogue. We say unfortunately, for although at first he succeeded in raising about £8000, yet they ultimately failed, and involved him in debt and difficulties.

"In the year 1752 the Doctor projected a scheme of a lottery, and as a sanction, offered to give the city of Dublin two-thirds of the profits towards rebuilding Essex-bridge, the other third to be divided between the hospitals following: Inns'-quay Infirmary, Mercer's, The Incurables, and Lying-in Hospitals. But £500 was to be given to the Lying-in Hospital out of the two-thirds allotted towards the bridge, and the like sum out of the dividends of the other hospitals, in the consideration that the Doctor had projected the scheme, &c. On this occasion a great number of the chief citizens, with all the physicians and surgeons belonging to the several hospitals, formed themselves into a society, and had many meetings. This lottery was intended to be drawn in Dublin, and Dr. Mosse

provided wheels, &c., at a great expense. But, after the tickets were all sold, the Lords Justices would not allow the drawing. Thereupon the Doctor went to London, to the Duke of Athol, to endeavour to obtain his leave to draw it in the Isle of Man, and offered the Duchess £1000: but such leave could not be procured, so that all the money received for tickets was returned, and the whole expense fell on the Doctor; the several others who were to have had share of the profits absolutely refusing to bear any share of the loss, which amounted to a very considerable sum. Notwithstanding this discouraging prospect, he continued to carry on the building, and raised money for that purpose (but soon planned another scheme) on his credit; but upon his going to London to forward a scheme in 1753, his enemies raised many scandalous and fresh reports, giving out that he had absconded for debt, and could never return; that he had deceived the town by attempting to work miracles, but that no man of common sense had ever looked upon him in any other light than that of a madman, or a builder of castles in the air.

“Whilst his character was thus roughly handled at home, he met with many difficulties abroad by his lottery schemes, for which he and many others were prosecuted. But, being of an undaunted resolution, he surmounted every obstacle, and continued to carry on the building to the surprise of his friends and the mortification of his enemies. The Doctor being in London in December, 1753, an intimate friend in Dublin wrote him a letter, which has been found amongst his papers, dated 11th December, 1753, from which the following is an extract: ‘I assure you that your success in London cannot give you more pleasure than it does me. Mr. N——tt wrote a private letter to Mr. M——ll, which he was pleased to communicate to me, and in this he gives him to understand that Dr. Mosse hath done wonders, that his traffic in the mercantile way *hath lowered the exchange, and that he hath supported the credit of poor Ireland at a very critical time.*’ In the year 1754 he founded a scheme on a Dutch lottery which would have enabled him to finish the hospital had it met with success. But meeting with many obstacles and unforeseen misfortunes in the progress of that scheme, and finding his character likely to suffer on that occasion more than ever, he thought proper the year following to lay a state of his whole proceedings in that affair before the public; which he accordingly published, and many hundreds of them were dispersed as well in London as in Dublin.”

As this public manifesto, which was published in 1755, has reference chiefly to matters of accounts in this lottery scheme, and insurance, and to a subject long since universally acknowledged,—the clearing of Dr. Mosse’s character and reputation,—we do not think it necessary to insert it here. It was originally intended that the hospital should have £10,000 from the scheme, but from losses and unfortunate chances it received but £2450.

In order to effect an insurance on this lottery, and to save all parties, Dr. Mosse proceeded to London. “This was readily procured by

the temptation of a premium of thirteen and a half per cent. The insurance was full immediately, and many gentlemen offered themselves for underwriters, for whom there was no room. Several merchants, of great note and fortune, were bound in a policy of insurance to secure the charity against the hazards of the wheel. The scheme was deemed very advantageous by every person, as the insuring adventurers had five per cent. above par. Still the success was far from answering their expectations, as will appear by the following state of the account and dealings between them and the managers, and a balance of £2320 4s. 6d. still due to the charity remains in their hands."

[Here follows, in Mr. Higgin's narrative, the statement of the accounts]

"It is mentioned in the foregoing narrative," says Mr. Higgins, in commenting upon this public statement of the accounts, "that the managers had paid the fortunate chances, until they had reduced the demand under £2000, which sum it was not in their power to discharge, as the insurers were upwards of that sum in their debt, and as they had expended on the building, out of the profits of that scheme, the sum of £2450, as appears by a state of the hospital published in the year 1757; so that they were obliged to stop payment, which was the occasion of great exultation to their enemies, and lessened the number of their friends, or, at least, such of them as would not be at the trouble of a nice examination of facts.

"Sometime after this the Doctor filed a bill against the insurers, to bring them to a fair account, to which they filed an answer, and therein acknowledged a debt of £2130. But the Doctor's death put an end to the suit, and the same debt remains due by the insurers, and about the like sum is still due to the fortunate adventurers."

The following romantic adventure occurred to him while returning to Dublin, after effecting the insurance just alluded to. "Amongst the many difficulties and distresses which the Doctor underwent in the last-mentioned scheme, the following is somewhat singular. Having been in London, paying off the fortunate chances, he left that city the latter end of 1755, in order to come to Dublin; and having arrived at Holyhead, as he was there going on shipboard, he was arrested by a person who had followed him from London, at the suit of a person who had been employed by him there, for an alleged debt of about £200. He was taken to Beaumaris, and there confined: but before his friends had notice of his situation he made his escape by night out of a back window which hung over the sea, and prevailed on two boatmen to carry him over an arm of the sea to a considerable distance, where, perhaps, no boat had before ventured, and he remained in a poor cabin on the wild mountains of Wales for some weeks before he would venture home."

All this time, however, the old hospital in George's-lane continued in active operation, dispensing its blessings among the poor, and educating a class of practitioners who were to carry the prac-

tial advantages which its instruction afforded, not only throughout our own, but to every civilized country on the globe. Up to this period (the end of 1755) Mosse had contrived to collect or otherwise procure no less than £11,694, chiefly by means of plays, oratorios, and "schemes" of various kinds. Of this sum, £3531 was laid out upon the support and maintenance of the hospital in George's-lane, and £8163 expended on the new building in Great Britain-street. At this period all his resources appear to have been exhausted; yet notwithstanding the ill success of his previous venture, he attempted another scheme, but his character was so much depreciated by the last that it did not succeed, and he found himself under a necessity of dropping that method of raising money. He was, moreover, involved in debt, and hourly subject to arrest and imprisonment, having sold or mortgaged almost every thing he was worth. In this distressed condition he communicated his unhappy situation to some persons of the first rank, and was encouraged to make an application to the House of Commons, and to pray their aid to pay off the debts he had contracted on account of the hospital, and to enable him to finish the same.

A copy of this document, to which we have already referred, and which was very widely circulated at the time, now lies before us. It is styled, "The Case of Bartholemew Mosse, Esq., of the City of Dublin, Surgeon, and Licentiate in Midwifery, 1755," and sets forth the erection of, and benefits derived from, the hospital in George's-lane; and, among other items, sheweth, "That the said hospital has been a means of stopping or lessening that most unnatural, though formerly frequent, practice of abandoning, or perhaps murdering, new-born infants; for since the first opening of the said hospital there have been few or no instances of a child exposed or murdered within the city or suburbs of Dublin. That such hospital being established in this city makes it unnecessary for such gentlemen as intend to practise midwifery to resort to France or other foreign parts for instruction and experience in this branch, several such having already been instructed in said hospital, and applications are daily made by others for the same purpose. * * * That the said Bartholomew Mosse hath laboured under many and great difficulties in the support of the said charitable institution, and in carrying on the building of the said new hospital, and cannot finish the same without the aid of the honourable House of Commons, having already been obliged to expend thereon a considerable sum of money out of his own private fortune."

Attached to this document are the whole accounts, receipts, and disbursements of the old hospital in George's-lane, as well as the sums expended on the erection of the new; by which it appears that during the ten years and a half ending the 30th September, 1755, there had been received £11,694, of which sum £10,548 was obtained from plays, oratorios, and various "schemes" in lotteries, devised by Dr. Mosse, the remainder only being donations and subscriptions. The sum of £3531 was expended upon the hospital in

George's-lane, and the fitting up of the gardens in Great Britain-street, leaving the Doctor and his work in debt £5830. As a claim or set-off against the country and the institution, the Doctor adopted a form of debtor and creditor account, not quite unknown in the present day. It runs thus at the top of the third page of his memorial:

" To the said Bartholomew Mosse's trouble in superintending the hospital in George's-lane ten years and a half.	—	—	—
" To ditto's trouble in superintending the new building in Great Britain-street seven years and a half.	—	—	—
" To ditto's five journeys to London and other parts of England, to further several schemes for the benefit of the hospital,	—	—	—
" To interest of money borrowed to carry on the building at such times as money could not be raised any other way,	—	—	—

Then follows "An Account of the Women admitted into the Hospital in George's-lane, from its first opening on the 25th March, 1745, to the 30th September, 1755, with their different Ages," the parishes in Dublin and the other parts of the kingdom from which they came, the class of society to which they belonged, the number of deliveries, results, and sex of births, and the mortalities of mothers and children, together with the number of twins, &c., forming altogether one of the most interesting as well as the earliest statistical tables of this description on record, and shewing that the registry of this hospital a hundred years ago was better kept than many of the present day. Finally, to this case of Mosse was appended a recommendation from the Protestant clergy and churchwardens of the various parishes in Dublin.

"We observe," say these latter, "that generally the habitation of the working poor in this city is only one room, and a family, or perhaps more, therein, where, when the wife is in labour, and sometimes before and after, the work of that room must be suspended, whereby not only the ordinary expenses must be continued, but even extraordinary must accrue for the use of the lying-in woman; and yet no work is carried on to support them, for fear of disturbing the woman, which frequently throws poor families, as objects of distress, on the parish, and the handicraft for the time is totally lost: therefore this hospital, besides the humanity of relief, may continue workmen at their employment, for the service of the public, and remove one common excuse for idleness. We further observe, that the condition of the wives of soldiers, menial servants, and labourers, more especially when they are left widows with child, is so deplorable, that they frequently have either no lodging for their reception in their distress, or are obliged to lie in ruinous untenanted houses, destitute of all conveniences of clothes, fire, &c., to the manifest danger of themselves and children."

This petition was presented in his own name in the session of

1755, and on the "23rd March, 1756, the House addressed His Majesty to grant a sum of £6000 to be 'expended in paying such debts as were then due, for materials and work done, at the said hospital, and in finishing the same,' and this sum His Majesty was graciously pleased to grant."

Before this time, so early as the 16th June, 1752, Dr. Mosse had applied for a charter to incorporate a number of noblemen and gentlemen as governors and guardians of the hospital; and in the year 1755 he succeeded in obtaining it. It is dated December 2, 1756, and in the preamble sets forth that, "in answer to a petition addressed to the Duke of Dorset, stating the number of poor women distressed at their lyings-in, and of children lost, especially the wives of soldiers and sailors; and that as a considerable sum has been collected and legacies bequeathed, and in order to prevent gentlemen going abroad for instruction," &c. &c., for these reasons it appoints the Lord Lieutenant, the Lord Primate, the Lord Archbishop of Dublin, the Lord Chancellor, the Right Honourable the Speaker of the House of Commons, the Lord Mayor, the Lord Bishop of Kildare, the Commander-in-chief, the Dean of St. Patrick's, the Archdeacon of Dublin, the High Sheriffs, the Earls of Kildare and Shelburn (afterwards Duke of Leinster, and Earl of Arran), the Lord Bishops of Clogher, Cork, Ross, and Raphoe, the Right Honourable Sir A. Gore, Right Honourable J. Ponsonby, Dr. Mosse, and others, to be a body corporate, under the name of the "Governors and Guardians of the Hospital for the Relief of poor Lying-in Women in Dublin," with the necessary powers and liabilities as such; with one President, six Vice-Presidents, a Treasurer, Secretary, and Master, with a Committee to manage the affairs of the hospital, &c. &c.

By it, the master is to be elected or re-elected annually, and certain rules are laid down for the election of other officers, and their salaries, &c.; and each master is now *ex officio* a governor, after his term of seven years has expired.

The following extract has reference to the medical appointments, and to the pupils:

"And we do further authorize and direct, that the master of the Lying-in Hospital for the time being be always some experienced practitioner in midwifery, and that he shall have two assistants, men-midwives, to be proposed by him; the said master to be appointed by the then sitting committee. And that all students in physic, surgeons, or apprentices to surgeons, and all such others, whether men or women, as intend to practise midwifery, and shall be approved of by the said master, shall and may have full liberty to attend the hospital, and be instructed under the said master and his two assistants. And that from and after the death, resignation, or removal for reasonable cause, of the said Bartholemew Mosse, whom we hereby appoint first master of the said hospital, and to continue in the said office for and during the term of his natural life, unless he shall sooner resign, or be removed for a reasonable cause, no

one person, however deserving, shall be capable of being elected master of said hospital, who has been master for seven years, either successively or at different times, but amounting in the whole term to seven years.

"And our further will is, that in all future elections of master of the hospital, regard be always had, and preference given, to such as have been assistants to the former or any master of the hospital; and that on proposing or appointing all future assistants, regard be always had and preference given to such as have been instructed in the said hospital. And we do hereby authorize and direct that no one person shall be continued assistant to the master longer than for the space of three years.

"And our further will and pleasure is, that these our letters patent, and every thing therein contained and specified in the enrolment thereof, shall be in all and every thing firm, valid, and effective in law, according to the perfect tenor of these our letters patent, &c. &c.

(Signed)

"DOMVILLE."

The topographical relations of the locality which was chosen for the site of the hospital in Great Britain-street, and the "New Gardens," as they then, and even up to a very recent period were denominated, may not be uninteresting. Let us follow the route which must have been taken from George's-lane to the upper end of Sackville-street. We suppose the passenger could with facility find his way under the creaking signs which projected from the narrow, gable-fronted houses of Dame-street, by "King William," if not better known, more revered a century ago; by the Old Post Office, afterwards the site of Daly's Club House; by Turn-stile-alley, and the Old Parliament House, to the College; and, turning through a collection of wretched sheds and thatched cabins, which then surrounded the river side of Alma Mater, into the narrow passage of Fleet-lane and Fleet-alley, which occupied the site of the present Westmoreland-street; by the Lazar House, through the barbers' shops, lime-kilns, and saw-pits(*a*), to "the Ferry," where he took boat to the northern side of the Liffey, nearly at the place where Carlisle-bridge now stands. There were no proper quays on any part of the river at that time; but a dirty strand occupied its banks, with the ends and backs of the houses presenting an irregular and broken line of dark, gloomy buildings along it, the lanes and alleys of which were unsafe to walk through, even in the day-light; while the shipping passed up to the Custom House, which stood a little below the southern end of Essex-bridge. Having reached the opposite bank, he might choose one of the two narrow streets and lanes, called the Dutch Lots, and Bachelor's-lane, which ran up-

(*a*) One of the oldest inhabitants of Dublin lately told us, that once passing through that lane to the river, in the open day, he no sooner entered its gloomy and polluted precincts, than a man called out, "There's a rat in the trap;" on which he was attacked by a ruffian who rushed out of an open door, and from whom he only escaped by defending himself with his cane-sword, without which few gentlemen ever then went abroad.

wards into Drogheda-street(*a*), now Lower Sackville-street, as far as the "Barracks," which occupied the locality of the present Post Office, to "The Mall," a large open space, with an oval enclosure, which occupied the site of the present Upper Sackville-street, then the almost suburban residence of many of the Irish nobility and gentry. Here a double row of tall elms shaded the Dublin belles and macaronies of 1750; and the loungers of the north side of the city vied with those of the south, who strutted within the sunk fence and dirty ditches of St. Stephen's-green. Beyond Great Britain-street it was almost "the country." The sloping ascent of what is now Rutland-square led to the Barley Fields; and an open space of waste ground opposite Britain-street, on which there were a few small thatched cabins, a pool of stagnant water, a "noddy stand," and "the bowling green"(*b*)—the whole being a locality memorable as a spot on which the Irish and the inhabitants of Dublin once overthrew the Danes in a fierce combat,—was chosen as the site of the present Hospital and Rotunda.

"It has often been regretted," say Whitelaw and Walsh, in their History of the City of Dublin, "that this fine edifice did not face Sackville-street, to which it would have formed a noble termination; and such, we are told, was the founder's wish, but a refusal on the part of the proprietor of that street to accede to the proposed exchange of some ground necessary for this purpose, obliged him to relinquish a plan which none but a man devoid of taste and judgment could reject."

The building was continued under the patronage of the governors and guardians of the new corporation; although in point of fact the management was very properly left in the hands of the founder, and, as we shall presently find, it was prosecuted with his usual energy. In the course of the session of 1757, the new corporation, at his instance, again petitioned parliament for a further supply for carrying on the work, and besides "recommended Dr. Mosse to the consideration of the House, setting forth 'that he had solely attended to the hospital in George's-lane twelve years, and superintended the building of the new hospital in Great Britain-street,

(*a*) The ground on this side of the water belonged to the Earl of Drogheda, from whom all the streets in this locality were named, thus—Henry, Moore, Earl, Off. Drogheda: Melifont-lane, now called Elephant-lane, was likewise named after a well-known locality on his property. Why do not some of our young antiquaries collect materials for preserving some record of Old Dublin, the topography, legends, and history of which, a hundred years ago, would, we are sure, make a most entertaining volume, and supply some future chronicler or novelist with materials which, in a few years more, it will be impossible to grasp?

(*b*) The Bowling Green, which was in use after the enclosure of the Rutland-square Gardens, is the piece of level ground still forming the lower part of this space. On the 14th of February, 1767, a number of gentlemen, residing in Rutland-square and its vicinity, petitioned the Board of Guardians to have it still kept up and put into proper order. In this petition they say: "We, therefore, presume when you know that we and many of the subscribers are entertained with that diversion (bowling) during the summer, you will give your directions for having the bowling-green put into proper order against the approaching season. This will much oblige us and several others, whom we apprehend will not subscribe unless they have the pleasure of such amusement in a better manner than heretofore."

and the making of the garden thereto, nine years and a half, with the utmost diligence, and that thereby the same were done in the most effectual and cheapest manner. That by such attendance and superintendence, and advancing and borrowing money to carry on the work, he had injured himself greatly in his profession, and hurt himself and his family in their circumstances." In consequence of this petition, the Honourable House, on the 11th November, 1757, were pleased to grant a sum of £6000 for the use of the hospital, and £2000 to Dr. Mosse, as a reward for his exertions."

At the close of the same year, 1757 (six years from the laying of the first stone), the hospital being nearly finished, and the upper floor furnished with fifty beds and all other requisites, the Doctor determined to open it immediately for the reception of patients, which was accordingly done, December 8, 1757, by His Grace the Duke of Bedford, then Lord Lieutenant, who, with Her Grace the Duchess, and a great number of the nobility and gentry, was entertained at breakfast at the hospital: after which, says the manuscript memoir, "fifty-two poor women, great with child, who attended in the hall with proper certificates for admission, and were all decently clothed in uniform at the expense of the hospital, each in a blue calimanco gown and petticoat, shift, handkerchief, cap, and apron; and thus they appeared before His Grace as President of the hospital, the Duchess, and the rest of the Governors and Guardians, with many of the nobility and gentry, who all expressed the highest satisfaction. During the whole time of breakfast and the ceremony of opening the hospital, their Graces and the company were entertained with a concert of vocal and instrumental music, and every thing was conducted in the most regular, easy, and genteel manner.

"Thus we see a public building, useful in its design, and beautiful in the execution, begun and carried on by the address and resolution of a single person, without either the security of fortune or patronage of the great: and yet, no application to Parliament until facts had silenced malice and extorted a general approbation(a)."

The hospital in George's-lane was now closed; and in one of the Annual Reports of Dr. Mosse, to which we have already alluded, it is stated, that "in the space of twelve years previous to the opening of the new hospital, 3975 women were delivered in the old one, of 2101 boys, and 1948 girls,—in all 4049 children, 74 women having had twins; and at an expense of £3913 13s., or about 19s. 8½d. for each woman and her child." Of the entire number Dr. Mosse observes, that the

" Proportion of males to females was as 12 to 11			
"	Women having twins	"	1 " 53½
"	Women dying	"	1 " 90⅓
"	Children dying in the		
	first month	"	1 " 17
"	Children still-born	"	1 " 34

(a) See Wilson's Dublin Magazine for April, 1763.

" OF THE AGES OF THE WOMEN :

409	were from	15 to 20
2452	„	21 „ 31
935	„	31 „ 41
89	„	41 „ 53"

"The Doctor being a native of the Queen's County, was looked upon by the grand jury and gentlemen of that county as an honour to it: and they at an assizes made a collection towards erecting and supporting a bed in the hospital, which they supported for some years, and it was called the Queen's County bed. Whereupon he intended to apply to the Grand Jury of every other county in the kingdom, and endeavour to induce each of them to erect and support a bed. He had a petition prepared for that purpose, which he had intended to have printed or engraved with proper blanks; but by his sickness and death this scheme, with many others, proved abortive.

"Doctor Mosse had also formed a scheme (which in fact was partly executed) for nursing, clothing, and maintaining all the children who should be born in the Lying-in-Hospital, whom their parents should consent to intrust to his care. A school was to be opened, provided with able Protestant masters in the most useful trades and manufactures. Into this school the children, at a proper age, were to be received; there to be instructed in the principles of the Christian religion, in honesty and industry, and to be taught some such trade as their genius most strongly inclined them to; (but his chief intention was to establish a hardware manufacture as at Birmingham in England); and it is a fact, that with a view of this kind he, at his own private expense, had put out some children to be nursed, who, after his death, were returned to their parents."

Among the various means resorted to by Mosse to support the hospital were the entertainments at the "New Gardens," as we already stated. What the exact condition of those gardens was on their first opening we are unable to say, as the picture which was painted of them was lost in Paris; but from some of the bills and private papers of Mosse we learn that a low wall originally surrounded the gardens, within which were planted rows of elm trees. Bands of music, and public singers, &c., were employed, and the gardens were occasionally handsomely illuminated, and the trees covered with coloured lamps. They were illuminated on all festivals and days of rejoicing. Thus we read in an account between George Falkner, the celebrated printer and editor of the *Journal* which bears his name, the following item: "This present evening, being the anniversary of the battle of Dettingen, the New Garden will be illuminated;" and again we find a similar advertisement inserted on account of the taking of Belleisle. Occa-

sional illuminations were ordered "by special command of the Lords Justices." We may here remark that the first play given for the benefit of the Lying-in Hospital was "The Conscious Lovers." Among the accounts for exhibitions we find a tumbler's bill "for the erection of Pluto's palace;" and we find under the item of "payments to musicians," during one summer, no less a sum than £1240.

Among the decorations and attractions got up by Dr. Mosse for the benefit of the Gardens was a picture of Charity (probably a transparency), painted by an artist named Tudor, who likewise "received £140 for painting the orchestra."

Mr. Higgins gives the following account of the Doctor's intention in decorating the Gardens:—"There is a part of the Garden wall on the east side, next Cavendish-street, which on the Garden side is built or lined with brick; there, he intended to build a pavilion, which would stand in the county of Dublin (all the rest of the Garden being in the city). For this pavilion he had actually provided hewn stone, and other materials. He also intended erecting a magnificent statue of Juno Lucina (the heathen goddess presiding over women in labour), and to call the garden Lucina's Garden. He had also agreed with the celebrated Mr. Van Nost for several statues which were actually fixed on pedestals, but as none of them were paid for in his life-time (one excepted), they were returned after his death."

Most of the bills and accounts which passed between Dr. Mosse and Van Nost for these statues being still preserved, and now lying before us, we are able to rectify this error of Mr. Higgins, who, probably, had not access to Van Nost's receipts, and we think the following list may not be uninteresting to the lovers of art. Some of those works were in marble, but the great majority were castings in metal. We find receipts for at least ten of these busts, only two of which are now forthcoming; some of the work was retained by the artist for non-payment of agreement after Dr. Mosse's death; but we have a positive receipt for the following:

"To Statues delivered at the Lying-in Hospital by John Van Nost.

"To a statue of Antinous, always sold for eighteen guineas, but agreed with Dr. Mosse to remit eight guineas in each of the six statues,			£11	7	6
"To a Venus de Medici,			11	7	6
"To a Mercury,			11	7	6
"To an Apollo,			11	7	6
"To a Faunus,			11	7	6
"To a sitting Venus,			11	7	6
"To a marble bust of Lord Sudley,			39	16	3
"To a marble bust of Lord Shannon,			39	16	3
			<hr/> £147 17 6		

Of which sum we find £97 7s. 3d. was paid by Dr. Mosse, through
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the hands of Mr. Murray; and at foot of the account we find the following notice in the handwriting of the artist:

“The intention of Dr. Mosse was by agreement with John Van Nost to have had several more marble busts, and two large statues, one of his present Majesty, the other of the Prince of Wales, to be fixed on each pavilion in the front of the building.”

We quote the following from a letter of Van Nost's, drawn up by him in 1759, after Dr. Mosse's decease, for the information of the Governors and Guardians of the hospital:

“At first he talked of twelve marble busts for the three long rooms, but concluded to make a beginning with four, namely, the Earl of Kildare, Bishop of Clogher, Lord Shannon, and Sir Arthur Gore. Three of these gentlemen sat for their likenesses to Mr. Van Nost, who, by directions of Dr. Mosse waited on the Earl of Kildare above three years ago, to beg the favour of a sitting for his Lordship's likeness. The Earl of Kildare refused it, but Dr. Mosse intended to use all the interest he could for that honour. Meanwhile Van Nost went on with the other three, two of which are finished, and the third boasted out. There were intended six statues in metal for the gardens, four of those are finished long ago, and they would all have been fixed up in the garden last summer had Mr. Darley completed the pedestals in time. The pedestals are now done in the garden, and one of the statues is fixed on. It was also agreed that John Van Nost should also execute two large statues in lead, and to be bronzed in gold; the one was to be King George the Second, the other the Prince of Wales, to be fixed on each pavilion in the front, as Van Nost has proportioned the plinths now set on the pavilion for that purpose. On agreeing for this business Dr. Mosse was pleased to tell Mr. Van Nost that he would not tie him down to any particular price, but desired that he would execute the work in the best manner, and from the good opinion he had of John Van Nost he would abide by his demands.”

The public may fairly ask what has become of this fine collection, of which, with the exception of two busts,—probably those of the Bishop of Clogher and Lord Shannon, which stand on short pillars, in the entrance hall,—no vestige now remains. The following letter, addressed by the artist to the board of governors, shortly after the decease of Mosse, may, however, throw some light upon the subject.

“I have several days past done myself the honour of attending this Board, concerning my statues, to beg to know if you will be pleased to purchase them, or if they are to be returned to me. Counsellor Whittingham was pleased some time ago to tell me to bring them, and fix them on the pedestals in the garden, as was intended by Dr. Mosse, telling me that if the gentlemen of this honourable board approved, I should be paid for them; if not, he promised they should be returned to me. According to his directions I fixed them on their pedestals with some expense. I have been a long time past collecting and making these six statues, on

purpose for this garden; four of them I could have sold the other day, but was not permitted to take them away." Mr. Higgins, however, informs us that they were all returned to the artist.

We have thus far entered into a detail of the foregoing circumstances, as affording an instance not only of the intense energy and perseverance of Mosse, but of his acquaintance with, and cultivation of the Fine Arts, and of his enlarged views and grand intentions with respect to the structure which he had designed, and, had he lived, would, no doubt, have completed. The gardens, as they must then have appeared, with their statues, pavilions, ornamental walks, fountains, water-works, and shrubberies, together with the entertainments given there, with bands, concerts, and pyrotechnic displays, and their constant and tasteful illuminations, must have formed a novelty most attractive in our city at that period; and indeed we believe this public promenade, which generally presented "a numerous and brilliant assemblage of the first people in the city," was one of the earliest places of public out-door amusement in the Irish metropolis.

The hospital was now completed from the design of Mr. Cassels, and formed one of the greatest architectural ornaments of our city; and we may here remark, that Dr. Mosse was not only the founder, but that the building was carried on under his immediate superintendence, and all the details of the expenditure passed through his hands: several of the audited accounts of which now lie before us. The following correspondence shews Dr. Mosse to have been possessed of a most cultivated and refined taste, and, as we already stated, to have paid no small attention to the arts.

"Hitherto no mention hath been made," says Mr. Higgins, "of the chapel in the hospital, which the Doctor intended should excel anything of that size in Europe, which, had he lived a little longer, it certainly would have done, the decorations of stucco figures and other beautiful ornaments being finished at a great expense by the ingenious Mr. Cranillion, and the pews made of the best mahogany. The Doctor intended to have the large place in the centre, and the four shields in the ceiling, painted, and the stucco cornices and mouldings round the shields, as well as the iron scroll-work round the gallery, gilt. And here it may afford satisfaction to give some account of the intended paintings in the ceiling. Mr. Cipriani, a painter, then in London, was applied to for this purpose, and a plan of the chapel, with the shields to be painted, was transmitted to him by the Doctor; and several letters passed between them on that occasion, which are looked upon as curious, and are therefore given *verbatim*.

"DOCTOR MOSSE TO MR. CIPRIANI.

"*Dublin, August 1, 1758.*

"SIR,—Agreeable to Mr. R—y's desire, you will receive with this a plan of the ceiling of the chapel in the Lying-in Hospital.

The room is eighty-six feet square and thirty feet high. The centre of the ceiling is prepared for painting in oil colours. The subject at present thought of is the Nativity of our Saviour; and those for the shields, such as Abraham offering up his son Isaac; Pharaoh's daughter taking Moses out of the bulrushes, &c. &c. You will observe that the ceiling is now properly plastered for painting thereon, prepared in a fit manner by the gentleman who executed the rest of the work. However, I am entirely of Mr. R—y's opinion, that the best and surest way will be for you to come over to Dublin and view the place. Then we can fix the price and subjects much easier: and if we should not then agree, you shall be paid all reasonable charges for your time and trouble that Mr. R—y shall approve of.'

“ MR. CIPRIANI TO DR. MOSSE.

“ ‘ London, October 4, 1758.

“ ‘ SIR,—You will excuse my not answering sooner your's of the first of August; the country and business have taken up so much of my time that I could not do it sooner. By the measure and description you were pleased to send me of the place to be painted in the hospital, I see that something fine may be done. These, therefore, are my demands: I shall, if you will agree to it, make a finished sketch, or, as we call it in the Italian, *un modells finits* of the whole; that is, a picture of a small size, that will give you an idea, and a very full idea, of the grand picture to be made according to your wishes. Whether my sketch is approved of or not, I will have forty guineas for it. If you should approve of it, we shall then treat about the sum that I shall expect for my coming to Dublin and painting the thing according to my sketch; and then you will give me leave to be so explicit as to tell you, with honest freedom, that I shall insist upon having the money to be agreed upon insured here in London. Was I a great and rich man I should not be so scrupulous; but as I must live by my pencil, I must make sure of my merchandize, and sell it in a clear, mercantile manner. I forewarn you, likewise, that I will have no superintendent to my work, and will not be under the least control.

“ ‘ You, Sir, and whoever is concerned in this affair, must prepare yourselves to be satisfied that I shall strive to do my best, and be content that an honest artist will do his utmost to gain fame and the good-will of his employers. This winter, then, if you agree to it, I shall make the sketch, and after having been paid for it, one-half before I begin, and the other half when I shall be done, I shall send it to you; and in case it give satisfaction, and the sum be agreed upon for the whole work, I shall set out next spring for Ireland to do it.

“ ‘ Whether we agree or not, I am very much obliged to you for the good opinion you seem to entertain of my abilities, and am, with the greatest regard,' &c.

“ DR. MOSSE TO MR. CIPRIANI.

“ ‘ *Dublin, October 20, 1758.*

“ ‘ SIR,—I received your’s of the 4th instant, and am satisfied to give you forty guineas for the sketch you mentioned, twenty guineas of which shall be immediately lodged with Messrs. Colley and Nixon, in Little St. Helen’s, Bishopsgate-street, to be paid to you on beginning the picture, and the remaining twenty guineas to be paid by the same gentlemen on your delivering the picture to them completely finished.’(a)

“ ‘ The device for the centre is to be the Nativity of our Saviour, and the devices for the four shields shall be sent to you in a week or ten days; and all those devices I would have painted into one piece.

“ ‘ The bearer, Signor Riccardelli, can describe the ceiling of the chapel in a plainer manner than can be done by letter, and can also tell you that there are no windows but on one side of the chapel, which are south-east, where the altar is to be placed. As this chapel is intended only for Protestant worship, I would have the painting entirely free from any superstitious or Popish representation. The sooner you finish the sketch the better it will answer the intended purpose. I send by Signor Riccardelli another draught of the moulding round the centre or grand piece, and also of the mouldings round the shields. I am, &c..’

“ MR. CIPRIANI TO DR. MOSSE.

“ ‘ *London, November 12, 1758.*

“ ‘ SIR,—Signor Riccardelli, in delivering me your’s of the 20th of October, has been so good as to give me a very clear and distinct idea of the situation and light of the chapel; and in consequence of your and his instructions, I hope I shall make such a sketch as to give satisfaction. I was much pleased in hearing from him that you understand what we call in Italian ‘*il sotto in su.*’ or, as I think you call it in English, ‘the foreshortened painting.’ It is always a great encouragement to an artist to have to do with people that have a clear conception of the powers of his art. Signor Riccardelli hinted to me that you appear a little surprised at my fair and open expressions in my last; and yet I hope my picturesque freedom was favourably construed, considering that I am a foreigner, that I have some business, in London, and that I cannot venture into a new country without being morally certain of succeeding.

“ ‘ I shall immediately set about the sketch, and be assured that my utmost skill and diligence shall be bestowed upon it. The sooner you send me the other devices the better; though, in my opinion, the middle and grand one would do better in a sketch by itself. Nevertheless, I shall comprise them all five in one, and take

(a) This sketch was finished, and after the Doctor’s death his executors, for the honour or his memory, wrote to Mr. Cipriani for it, and offered to pay the remaining twenty guineas; but the painter did not choose to part with it.

these additional pains to remove all objections. I beg you will consider me as being, with the greatest esteem, &c.

“P.S.—I forgot almost to tell you that you shall have no other Popery in the picture than the Nativity of our Saviour; and, as I am pretty sure that the Pope shall never set foot in Ireland, so you may be confident that my picture will never contribute to the enlargement of His Holiness’s jurisdiction.”

“MR. CIPRIANI TO DR. MOSSE.

“*London, November 20, 1758.*

“SIR,—I forgot to tell you in my former that Signor Riccardelli has apprized me of what you told him, that you were not yet entirely resolved in regard of the main subject, and whether it should be the Nativity of our Saviour or His Ascension. My inclination tends rather to the Nativity, as more susceptible of poetical images, at least in my opinion; yet the subject is to please you and the beholders, rather than the painter. Therefore, please do me the honour to acquaint me with your final determination, that I may go about it in good earnest. Meanwhile I shall go on drawing thoughts fit for either subject, and shall be very impatient to have them fixed by the knowledge of your pleasure.”

“DR. MOSSE TO MR. CIPRIANI.

“*Dublin, December 2, 1758.*

“SIR,—I received both your letters of the 12th and 20th of November, and have considered the subjects, and think that the following devices will be very proper for the chapel of the Lying-in Hospital:

“As you approve of the Nativity of our Lord for the centre, I am well pleased it should be the subject. In the second chapter of St. Luke’s Gospel you behold a multitude of the heavenly host, appearing amid the gloom of night to poor affrighted shepherds, proclaiming the happy birth of the great Redeemer of mankind; and in the second chapter of St. Matthew’s Gospel a star leadeth the wise men to the place of our Lord’s nativity. They behold him in his mother’s arms; in raptures they adore him, and present gifts, &c. May not the star leading the wise men have a fine effect? Their prostration also before the babe? If you should happen to alter your opinion, and choose the Ascension instead of the Nativity, you will find it described in the first chapter of the Acts of the Apostles, and I leave it to your choice which of these two subjects to make use of.

“And for the four shields: First, in the tenth chapter of St. Mark we behold little children crowding about our Lord, some attempting to walk, others in their mothers’ arms, the disciples rebuking those that brought them, our Lord ordering them to be permitted to come to him, expressing his great love for them

in the most endearing manner, taking them up in his arms, embracing them, blessing them. All these figures are most strong and striking. Second: Look into the twenty-first chapter of Genesis, fifteenth and sixteenth verses, Hagar weeping over her expiring child, and calling upon God for relief; God sendeth his angel, &c. Are not these striking figures? Remark that God sendeth help to the mother and child, both forlorn and disconsolate, wearied with their journey through the inhospitable wilderness of Beersheba. Remark further, that she cannot bear to see the child die. May she not be represented with her hands lifted up to heaven, taking the last look at her beloved? Third: In the first chapter of Exodus we read of Pharaoh's barbarous purpose of putting an end to the whole Hebrew race (verse 15). The King of Egypt spake to the Hebrew midwives, and said: 'When ye do the office of a midwife to the Hebrew women, and see them upon the stools, if it be a son then shall ye kill him, but if it be a daughter then shall she live. But the midwives feared God, and did not as the King of Egypt commanded them, but saved the men-children alive. And the King of Egypt called for the midwives, and said unto them, Why have ye done this thing, and saved the men-children alive? May not Pharaoh be represented rising from his throne, his hands raised up, his eyes furious, and his whole visage overspread with rage; the affrighted women bending before him pleading their excuse. This story seems to afford full scope for the genius of a painter to exercise itself. Fourth: In the second chapter of Exodus you behold Pharaoh's daughter at the bank of a river, looking with eyes of tenderness, surprize, and compassion, upon Moses, a beautiful infant, weeping in the ark. May she not be further represented as affording immediate succour, agreeing with a nurse who happens to be the child's mother, and will not the astonished, delighted mother make a beautiful part of the picture? Although I have here mentioned four devices which I think would be proper for the shields, yet if you should find any of them, in your judgment, not convenient for the size or compass of those shields, or should think of any other subject more proper, or which you think would have a better effect, be pleased to let me hear from you, that we may endeavour to please each other. I am, &c., &c.'

"The Doctor," continues the manuscript, "had bespoke an organ for the chapel, which was not finished in his life-time, but hath since been received, and being thought too large and too loud for the size of the chapel, hath been erected in the new music room, or large Rotundo. He had also bespoke a chiming clock and a ring of small bells for the steeple of the Hospital, but some ladies who lived in the neighbourhood insisted that neither bells nor clock should be fixed there, as they might disturb them on mornings; which he (though with great reluctance) complied with. He also intended to fit out an observatory in the steeple, and had provided a telescope for it; but the telescope, through some mistake in landing it, was seized by a revenue officer, and afterwards sold by auc-

tion at the Custom House while the Doctor was absent in England, and that part of the steeple remains still unfinished.

“While the chapel was finishing with all possible expedition, the Doctor applied to the late Rev. Dr. Lawson, and requested him to preach the first sermon therein, which he readily agreed to, and wrote a sermon for that purpose, which he privately lent to the Doctor, who had a copy made of it, and returned the original at the time appointed. This copy being found amongst the Doctor’s papers after his death, hath been published by his executors, and by that means escaped the fate which all the sermons of that great preacher met with, being burned by directions of his last will. As some persons, to this day, object to this hospital as being an encouragement to idleness and to vice, and as being too grand in the building, the sermon above-mentioned answers these objections in the following manner:

“But may not this institution, after all, be an encouragement to idleness? Women bred to work, finding here unbought, unearned provision, will cease from labour. Surely they must be very bad, and would be idle at any rate, whom the prospect of an aid so limited and transitory can make idle. Say, rather, the industrious will be induced by this comfortable help in their greatest exigencies, to redouble their industry, will work more cheerfully, and return to labour with better health. Well, but is not this institution an encouragement to vice and licentious manners? Is vice indeed so provident? Doth it foresee with such deliberation, and is it deterred by future difficulties and dangers? Surely not; it braves the greatest every day. At least the good wrought here is certain, the evil, if any, doubtful; besides, all due care is taken to prevent such supposed abuse. The admitted, their state, character, circumstances, are inquired into, and proper testimonials demanded; or if, after all deserving objects that offer have been taken care of, an unworthy should by stealth slide in, would not piety, would not humanity forgive? At worst, one sinless soul is preserved, the unoffending infant. Well, but, granting all this, why such grandeur? To relieve these poor objects ’tis right, but why in a palace? You will agree that such building should be large for convenience, strong for lasting, neat and warm for health. Now, allow fully for these conditions; ornament occasions a much less additional expense than is imagined; neither is it useless; it gives pleasure to a beneficent mind to behold the seat of the bounty clean, fair, even elegant; it draws attention and inquiry to a scheme so reasonable and benefactions. Virtue should be beautiful as well as beneficial.”

The hospital now being open for the reception of patients, its character and that of its founder established beyond the reach of calumny, the Government of the country in some degree pledged to its support, and many individuals of the highest rank and greatest influence interested in its prosperity, Dr. Mosse may well have surveyed the result of his labours with complacency, and have contemplated spending the remainder of his life less laboriously,

though not less usefully, in extending the benefits of this great work to the poor, and in training up a body of well-educated, intelligent practitioners, to spread throughout the country the benefits received at his hands. We say, he might not unreasonably have anticipated this, but such was not his appointed lot; it pleased God to spare his life, just to witness the perfect success of his exertions in the establishment of the hospital, but no more.

“ Having greatly impaired his health by intense study and application of mind, by his close attention to the business of the hospital, by constantly superintending the building, and by several fatiguing journeys to London, to forward his schemes, he did not long enjoy the pleasure arising from the success of his labours, for he grew so ill in the beginning of the winter of 1758, that he was obliged for the most part to confine himself to his chamber. Several physicians attended him, but, finding all their endeavours ineffectual, they advised him to return into the country. On this occasion Alderman Peter Barre made him the kind offer of his house at Cullenswood (about a mile from town), which the Doctor readily accepted: and there, on the 16th of February following, he departed this life in the 47th year of his age, and was interred at Donnybrook^(a), leaving the new hospital a monument to posterity of his surprising perseverance, diligence, and ingenuity, and indeed one of the most superb architectural ornaments of the great and elegant city of Dublin. He left but two children.”

Thus died this great and good man, in the prime of life and usefulness, possessing great energy and high benevolence of character, which he so employed as to have conferred immeasurable benefit upon his own and subsequent generations. His eulogy is to be found in his acts. Without fortune, without influence, without patronage, without precedent, he conceived the project of affording relief to a certain class of the community, and with extraordinary energy, prudence, and perseverance, by never relaxing, never despairing, he carried it into execution, at an expense of character, station, and pecuniary independence. By the earnestness of his benevolence he interested persons of all classes, and finally secured for his good work the patronage of Government, and the protection of the throne. For this one great object, of providing an asylum and a refuge for woman in her greatest hour of trial, he lived,—for this he may be said to have died,—died poor as to wealth, but rich in the blessings of the needy, and of those who were ready to perish.

The following extract from the Doctor's Will provides that the object for which he sacrificed so much during his lifetime should be secured to the poor after his death. “ Whereas William Naper, Esq., did, by indenture bearing date the 15th day of August, in the year of our Lord 1748, demise and grant all that lot or piece of ground on the north side of Great Britain-street, described at large in such indenture and the maps thereto annexed, unto me, my heirs and as-

(a) We have made diligent but unsuccessful search for the tomb of Mosse at Donnybrook.

signs, during the lives in such indenture named, with a covenant of renewal for ever, at the yearly rent of £70 sterling, after the first two years of said demise; and by a deed bearing date the first day of January, 1749, and endorsed upon the said indenture of lease, I have declared that the said indenture of lease, and the ground thereby demised, were taken by me in trust for the hospital for poor distressed lying-in women; and I did thereby covenant with the trustees or persons in such endorsed deed named, to make and execute such further grant and conveyance of the said premises as should be thought necessary for assuring the same to the use and benefit of the said hospital, as in and by said indenture of lease, and the said deed, endorsed thereupon more fully appears.

“And it hath pleased Almighty God to bless my intention and endeavour so far, that, notwithstanding the many difficulties I have struggled with, I have lived to see an hospital for the said charitable use built upon the said ground, and now almost completed; His Majesty’s most gracious charter obtained, erecting a corporation by the name of ‘The Governors and Guardians of the Hospital for the Relief of poor Lying-in Women in Dublin;’ and the said charity and hospital encouraged and supported by the benefactions of many well-disposed persons, but, above all, by the Honourable House of Commons of this kingdom, in their several votes and addresses in favour of the same.

“I think it my duty, in the first place, with regard to worldly affairs, to confirm, as far as in me lies, my said declaration of trust; and I do hereby, for me, my heirs, and assigns, grant, confirm, give, and devise all the said lot or piece of ground, with the said indenture of lease, and all benefit of the covenant for renewal, and all and singular the premises demised and granted by the said indenture, together with all buildings and improvements whatsoever erected or made thereupon, and all my right, title, or interest of, in, or to the same, subject, however, to the rent, covenants, or reservations on the tenants or lessees’ part, in the said indenture contained, to be paid, done, or performed, to the Right Honourable James Earl of Kildare, and the Right Honourable Sir Arthur Grove, Lord Viscount Sudley, of Castle Grove, and their heirs for ever, to the only use and behoof of the said corporation or body politic, and their successors for ever.”

Immediately after Dr. Mosse’s death, the Governors held several meetings for the purpose of investigating into the state of the hospital, and the works then carrying on; and finding themselves in debt, and several parts of the building unfinished, they petitioned the House of Commons, in November, 1759, for a further grant of money, and also recommended to the consideration of Parliament the Doctor’s family. This petition was accompanied by one from Mrs. Jane Mosse, the Doctor’s widow; and in consequence of a favourable report from the Committee of Inquiry, the House was pleased to grant £3000 to the hospital, and £1000 to Mrs. Mosse, for the use of herself and her children.

Similar petitions were presented in November, 1761, and November, 1763, and grants were made, to the amount of £4000 to the hospital, and £1500 to Mrs. Mosse.

Soon after this last grant the Governors undertook the erection of the Rotundo, which is 100 feet in diameter, and capable of accommodating upwards of 2000 persons; and having expended thereupon £1800, they again petitioned Parliament for aid, as upwards of £2000 more were required to complete it. In reply to this petition the House gave an additional grant of £2000.

It may not be uninteresting to insert here a debtor and creditor account between Dr. Mosse and the public, which is given in the manuscript memoir, with the following observations:

“From what has been said it may give some satisfaction to consider how far the public are obliged or indebted to Dr. Mosse on account of this hospital. This can only be shewn in a general way, leaving every reader at liberty to criticise, alter, or object to the form, to the whole, or a part, as he shall think proper. But the following sketch is submitted to the impartial and the candid.

THE PUBLIC TO DR. MOSSE

<i>Dr.</i>	£	<i>Cr.</i>	£
To fitting up, furnishing, and maintaining twelve years, the hospital in George's-lane (printed statement)	3913	By two Parliamentary Grants in Sessions 1755-7, £6000 each, net, deducting fees,	11,640
To laying out and making the garden in Great Britain-street, building coffee-room, orchestra, &c., finding wood, iron work, globes, &c.,	4000	By ten years' profits of the garden,	4000
To value of said garden (now capable of producing, at least, £500 per annum),	10,000	By lottery schemes, about	9595
To building and furnishing the new hospital as it stood at his death, by a gross calculation of skilful persons,	25,000	By several benefactions, about	2108
To maintenance of said hospital from its opening until his death, about	800	By Parliamentary Grant to himself in 1757, net,	1940
To his attendance, labour, and trouble for fifteen years,	5000	By cash from Governors of hospital to his executors,	1000
		By Parliamentary Grants to his widow and children 1759, 1761, and 1762, £2500, net	2425
			32,708
		Balance due by the public which, at least, deserves gratitude to his memory,	16,005
			48,713
	48,713		

“N.B.—It is submitted to the consideration of the public whether credit should be given in the above sketch for the first £6000 obtained from Parliament by the Doctor's own unwearied industry and application (being net £5820), or for the money raised by his own schemes, being £9595, making together £15,415, which being added to the said balance of £16,005, would make the balance due by the public £31,420, without considering his many journeys, troubles, and anxieties, which few men, if any, in this age would have undergone without some view of profit(a).”

(a) Thus ends the memoir of Mr. Higgins, from which we have derived most

But, though the good thus effected be great and unparalleled in these kingdoms, we think it inferior in point of value to the benefit conferred upon the profession, and, through it, upon the public in general, by the extensive opportunities of observation and experience afforded to both masters and students. It is to be regretted that no regular registry of the pupils who attended this institution was preserved until the days of the late Dr. Clarke. Were such in existence, it would now be a pleasing task to state the exact numbers, of the many thousand students, from the different countries of the British isles, and from the Continent, who have profited by this splendid establishment. The majority of the students attend for six months, but many for a much longer period, and six are accommodated with apartments in the hospital: all receiving practical instruction, at the bed-side and in the lecture room, from the master and his assistants.

From among these pupils, fifty-six assistants have been elected, two at a time, for a period of three years, having during that period the supervision of the hospital in turn, under the superintendence of the master, and enjoying opportunities of performing the more serious operations under his eye.

From among the assistants, fourteen masters have been appointed, each for a period of seven years, having during that time the undivided management and responsibility of the patients.

Dr. Mosse's successor in the mastership was the celebrated Sir Fielding Ould.

If now we recollect that for some years past more than 2000 females have been delivered annually in the hospital, we shall see that a man who has successively been pupil, assistant, and master, must have had such experience as falls to the lot of no other obstetrician in the empire. We may safely assert that nearly all the correct practical knowledge of midwifery, diffused through this country, has had its origin in the benevolent enterprize of Dr. Mosse.

As a school of midwifery we are proud to claim for it an unrivalled superiority, not only in the British isles, but (and we speak advisedly, having visited all the others of note upon the Conti-

of the previous information. Since the foregoing sheets were put to press we have received the following notices of this gentleman from the minute books of the hospital. Benjamin Higgins was ordered (as clerk) to prepare a report of the tradesmen's bills on the 15th of October, 1759; appointed register 2nd May, 1760; Nov. 1st, 1771, petitions to be excused from attendance at concerts on account of his health; received at this time an additional salary of £20 per annum; appointed deputy treasurer in 1790; again, in 1796, a memorial was presented to the Lord Lieutenant in behalf of the widow of Benjamin Higgins. On the 14th May, 1796, "The Board, taking into consideration the faithful services of B. Higgins, who has since the foundation of this charity been a diligent and unwearied supporter of the same for forty years and upwards, and having considered the narrow circumstances of his widow, Resolved, that in case the funds of this institution shall exceed its annual expenditure, the annual sum of £30 sterling be paid to the widow of the said Benjamin Higgins." "Resolved, that this Board will place a tombstone in the churchyard of Donnybrook, over the grave of the said Benjamin Higgins, as a lasting testimony of their regret at his loss, and of their grateful sense of his unremitting zeal for this institution."

ment) in Europe also. The writings of Ould, Jebb, Clarke, Labatt, Collins, and Kennedy, who have been successively masters of this hospital, and of Douglass, Murphy, and others, who have been assistants, evidence the amount of information which it affords. Dr. Collins, in his truly practical and honest report of his seven years' mastership, has set an example which we sincerely hope to see imitated; and we trust our present master and his assistants will shortly give us the result of their experience.

There are some subjects connected with the Lying-in Hospital on which we would, in all good friendship, make a few observations. It has been now nearly ninety years in existence in Britain-street. There have been upwards of 155,000 deliveries, and with all this, no public obstetric museum has yet been created in this hospital. It is true that individual masters have, for the benefit of their pupils, made collections; but these are their private property, either to be removed from the institution, or disposed of to the incoming masters, on the occasion of a change of officers. Look at the splendid collection which Dr. Montgomery(*a*), from his own private resources, almost, we may say, with his own hands, has created for the benefit of his lectures at the School of Physic; and why should not the Lying-in Hospital, with its ample means and most extensive resources, be supplied with this most necessary appliance to any school of practical medical science.

There is a library within the walls of the hospital, but it also is private property(*b*). Again, there are, as in every well-regulated hospital, accurate notes taken of all, or at least of most of the cases of interest, and we know that a volume of most important *material* is thus collected by each of the masters and their assistants, but this is private property. Why not, as in other hospitals, provide a proper clinical clerk to note, and proper books to preserve this valuable information, reserving to the medical officers, for the time being, the right of making use of it?

From 1757 to the beginning of the present year, the number of patients admitted has been 159,625; sent out undelivered, 7015; delivered in hospital 152,395; of 154,630 children, the sexes being in the proportion of about twelve males to eleven females. The number of women having twins, or more, has been one in sixty; having three or four children, about 1 in 5000 (there was only one instance of four at a birth); children still-born, about one to seventeen; mortality of mothers, one in eighty-nine; children dying in the hospital, one in twenty-one.

(*a*) This Museum of Dr. Montgomery's contains about 700 preparations. It is his own private property, but the College of Physicians have provided a room for it at their Hall in Sir Patrick Dun's Hospital. In our last biography, p. 292, this circumstance of the Museum being the Doctor's private property was inadvertently, and most unintentionally omitted.

(*b*) We have just learned that the Commissioners for Inquiry into the State of the Public Charities of Dublin have recommended the purchase of both these by the Government.

Neither our time nor space permit us to enter into the history of the Dublin Lying-in Hospital subsequent to the time of Mosse; we may mention, however, that as it now stands, it contains 140 beds, of which number fifteen are appropriated to chronic diseases. Subsequent to the building of the Rotundo, in 1765, the hospital was in a great measure supported by means of the income derived from it, and the subscriptions of the Governors. The average receipts of the Gardens, Rotundo, and public Assembly-rooms, from 1789 to 1796, amounted to four thousand pounds per annum; but after this period this income became greatly diminished. A large portion of the produce of the entertainments, amounting to about £1000 yearly, arose from Sunday evening promenades; but in 1796, representations having been made to the Governors, that these entertainments were prejudicial to religion and morality, they were relinquished. During the year 1798, and for some years afterwards, the public rooms were occupied as a barrack by the Government, during which time the supplies arising from entertainments were greatly diminished; and the tax on sedan chairs^(a), which the Governor were empowered to levy by an Act of 25 Geo. III.—and which for many years made a very considerable item in the resources of the institution, amounting in 1798 to £547,—having gradually diminished every year, in 1803 the British Parliament granted £2619, and from that period large annual grants were made up to the year 1835, when the Government reduced this source of income to £1000 a year. In 1790 debentures were issued for a loan of £11,000 to complete the Rotundo rooms, the interest of which has ever since been paid at 4 per cent., Irish; and this £400 a year is still a heavy drag upon the resources of the institution.

(a) During the period when this tax was levied, the hospital published “A List of the Proprietors of Licenses for Sedan Chairs,” &c., together with “A Scheme for Card Assemblies,” &c. From one of these curious little books now lying before us, and in which are likewise given the coats of arms of all the benefactors of the institution (some of which armorial bearings are still preserved in the wards of the institution), we learn that there were 257 *private* sedan chairs in Dublin in 1787, belonging, besides the ordinary resident gentry, to one Duke, one Duchess, twelve Earls, sixteen Countesses, eleven Viscounts, nine Viscountesses, thirty-seven titled Ladies, one Archbishop, three Bishops, five Lords, ten Baronets, forty-two Honourables, male and female, &c.

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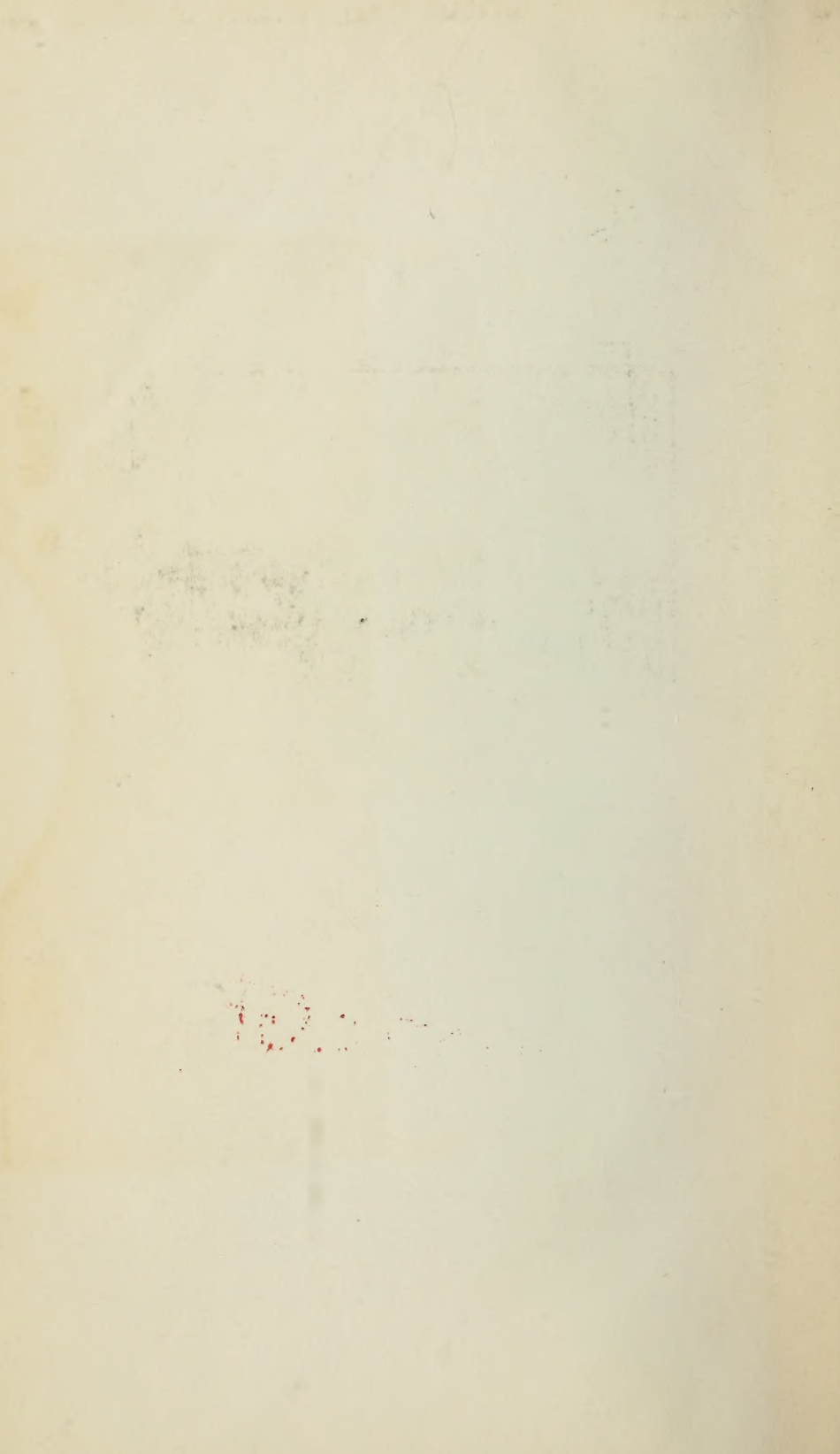
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